

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

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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- 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 - N0C: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 - NOC:Railway Engineering

Subject Co-ordinator - Prof. Rajat Rastogi

Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - Introduction
Lecture 2 - Permanent Way
Lecture 3 - Gauges
Lecture 4 - Wheels and Axles, Locomotives, Wagons
Lecture 5 - Wagons, Coning of Wheels
Lecture 6 - Rail Sections
Lecture 7 - Rail Length, Tests and Failures
Lecture 8 - Sleepers - Density and Spacing
Lecture 9 - Sleepers - Types and Uses
Lecture 10 - Ballast Cushion
Lecture 11 - Traction and Resistances
Lecture 12 - Resistances
Lecture 13 - Hauling Capacity and Tractive Effort
Lecture 14 - Hauling Capacity Numerical
Lecture 15 - Track Modulus and Relief of Stresses
Lecture 16 - Track Stresses - Vertical Lateral Longitudinal
Lecture 17 - Track Stresses - Rails
Lecture 18 - Track Stresses - Rails and Sleepers
Lecture 19 - Track Stresses - Ballast Formation
Lecture 20 - Joints in Rails - Types and Requirements
Lecture 21 - Joints in Rails - Insulated and Welded
Lecture 22 - Joints in Rails - Flash Butt Weld
Lecture 23 - SWR Rails
Lecture 24 - Creep in Rails
Lecture 25 - Buckling, Hogging, Battering, Corrosion and Corrugation
Lecture 26 - Corrosion, Corrugation and Rail Failures - I
Lecture 27 - Rail Failures - II
Lecture 28 - Rail Failures and Wears
Lecture 29 - Rail Wears

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- Lecture 30 - Permissible Wear, LWR and CWR
- Lecture 31 - LWR and CWR
- Lecture 32 - Fastenings - Rail to Rail
- Lecture 33 - Fastenings - Rail to Sleeper (Elastic)
- Lecture 34 - Fastenings - Rail to Sleeper (Others)
- Lecture 35 - Track Alignment
- Lecture 36 - Speed on Track
- Lecture 37 - Circular Curve on Track
- Lecture 38 - Superelevation on Track - I
- Lecture 39 - Superelevation on Track - II and Transition Curves - I
- Lecture 40 - Transition Curves - II, Extra Clearances
- Lecture 41 - Widening of Gauge and Vertical Curves
- Lecture 42 - Realignment of Curves
- Lecture 43 - Turnouts, Points and Crossings - I
- Lecture 44 - Turnouts, Points and Crossings - II
- Lecture 45 - Crossings and Turnout Design
- Lecture 46 - Turnout Design and Maintenance
- Lecture 47 - Track Junctions and Design - I
- Lecture 48 - Track Junctions and Design - II
- Lecture 49 - Signaling - I
- Lecture 50 - Signaling - II
- Lecture 51 - Signaling - III
- Lecture 52 - Interlocking Systems - I
- Lecture 53 - Interlocking Systems - II
- Lecture 54 - Interlocking Systems - III
- Lecture 55 - Interlocking Systems - IV
- Lecture 56 - Train Control Systems - I
- Lecture 57 - Train Control Systems - II
- Lecture 58 - Stations, Yards, Level Crossings
- Lecture 59 - Track Maintenance - I
- Lecture 60 - Track Maintenance - II
- Lecture 61 - Track Maintenance - III
- Lecture 62 - Track Maintenance - IV
- Lecture 63 - Track Renewals and Drainage
- Lecture 64 - High Speed Tracks

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

NPTEL Video Course - Civil Engineering - N0C:Groundwater Engineering

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 Groundwater Hydrology - 1
Lecture 2 - Introduction to Groundwater Hydrology - 2
Lecture 3 - Why to study groundwater
Lecture 4 - Hydrological Cycle - 1
Lecture 5 - Hydrological Cycle - 2
Lecture 6 - Surface water vs groundwater
Lecture 7 - Water Balance and its Components
Lecture 8 - Types of aquifers - 1
Lecture 9 - Types of aquifers - 2
Lecture 10 - Infiltration and Percolation
Lecture 11 - Porosity
Lecture 12 - Permeability
Lecture 13 - Surface Runoff
Lecture 14 - Darcy's Law - 1
Lecture 15 - Darcy's Law - 2
Lecture 16 - Darcy's Law - 3
Lecture 17 - Reynolds Number
Lecture 18 - Groundwater Flow and Flow Nets
Lecture 19 - Darcy's law applied to aquifers
Lecture 20 - Flow to a well
Lecture 21 - Transmissibility
Lecture 22 - Speed of Groundwater Movement
Lecture 23 - Drawdowns in the vicinity of discharging wells
Lecture 24 - Aquifer Boundaries
Lecture 25 - Flow nets near aquifer boundaries
Lecture 26 - Nonsteady state steady state and steady state conditions
Lecture 27 - Jacob Method
Lecture 28 - Field determination of transmissibility and storage coefficient - 1
Lecture 29 - Field determination of transmissibility and storage coefficient - 2

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- Lecture 30 - Theis Equation and example of superposition for solution
- Lecture 31 - Theis Equation Theis Equation Assumptions and Applications - 1
- Lecture 32 - Theis Equation Theis Equation Assumptions and Applications - 2
- Lecture 33 - Geologic Formations as Aquifers - 1
- Lecture 34 - Geologic Formations as Aquifers - 2
- Lecture 35 - Geologic Formations as Aquifers - 3
- Lecture 36 - Springs
- Lecture 37 - Springs in India - 1
- Lecture 38 - Springs in India - 2
- Lecture 39 - Groundwater Exploration - 1
- Lecture 40 - Groundwater Exploration - 2
- Lecture 41 - Groundwater Exploration - 3
- Lecture 42 - Groundwater Exploration - 4
- Lecture 43 - Groundwater Exploration - 5
- Lecture 44 - Groundwater Exploration - 6
- Lecture 45 - Groundwater Exploration - 7
- Lecture 46 - Groundwater Exploration - 8
- Lecture 47 - Groundwater Exploration - 9
- Lecture 48 - Groundwater Exploration - 10
- Lecture 49 - Groundwater Exploration - 11
- Lecture 50 - Groundwater Exploration - 12
- Lecture 51 - Groundwater Exploration - 13 : Sampling
- Lecture 52 - Groundwater Exploration - 14 : Hydrogeological Well Logging
- Lecture 53 - Groundwater Exploration - 15 : Spontaneous potential logging
- Lecture 54 - Groundwater Exploration - 16 : Selection of types of wells and Exploration for Art-Rec sites
- Lecture 55 - Groundwater Exploration - 17 : Exploration for hot springs
- Lecture 56 - Groundwater Exploration - 18 : Pollution related exploration
- Lecture 57 - Groundwater Quality
- Lecture 58 - Conjunctive use of ground and surface water
- Lecture 59 - Groundwater Modelling - 1
- Lecture 60 - Groundwater Modelling - 2
- Lecture 61 - Groundwater Recharge Methods in India
- Lecture 62 - Artificial Recharge Techniques and Designs

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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

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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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- 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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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

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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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- 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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- 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
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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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