

## 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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- 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