

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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Lecture 30 - Energy Methods (Continued...)
Lecture 31 - Theories of Failure
Lecture 32 - Theories of Failure (Continued...)