

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

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics

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Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Course outline
- Lecture 2 - Vectorial representation of forces and moments
- Lecture 3 - Couple moment and reduction of a force system to a force and a couple
- Lecture 4 - Examples of couple moment
- Lecture 5 - Examples: moment in three dimensions
- Lecture 6 - Free body diagram and support reactions
- Lecture 7 - Equilibrium of rigid bodies in two and three dimensions
- Lecture 8 - Examples: Equilibrium of rigid bodies in two dimensions
- Lecture 9 - Examples: Equilibrium of rigid bodies in three dimensions
- Lecture 10 - Examples: Beams and distributed loads
- Lecture 11 - Flexible Cable
- Lecture 12 - Flexible Cable, Catenary curve
- Lecture 13 - Examples: Parabolic and Catenary cables
- Lecture 14 - Flexible Cable: Concentrated load
- Lecture 15 - Structures: Plane Trusses
- Lecture 16 - Analysis of trusses: Method of joints
- Lecture 17 - Analysis of trusses: Method of sections
- Lecture 18 - Shear force and bending moment
- Lecture 19 - Shear force and bending moment: distributed load
- Lecture 20 - Principle of virtual work
- Lecture 21 - Principle of virtual work: examples - I
- Lecture 22 - Principle of virtual work: examples - II
- Lecture 23 - Stable and unstable equilibrium
- Lecture 24 - Friction
- Lecture 25 - Friction: examples
- Lecture 26 - Rope and belt friction
- Lecture 27 - Rope and belt friction: examples
- Lecture 28 - Rolling resistance
- Lecture 29 - Revision: static

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- Lecture 30 - Coordinate systems: Cartesian and planar polar coordinates
- Lecture 31 - Coordinate systems: spherical coordinates
- Lecture 32 - Coordinate systems: cylindrical coordinates
- Lecture 33 - Cartesian and planar polar coordinates: examples
- Lecture 34 - Spherical and cylindrical coordinates: examples
- Lecture 35 - Equation of motion in different coordinate systems
- Lecture 36 - Equation of motion: examples
- Lecture 37 - Work energy method
- Lecture 38 - Work energy method: examples
- Lecture 39 - Impulse momentum relation
- Lecture 40 - Variable mass
- Lecture 41 - Direct central impact
- Lecture 42 - Oblique central impact
- Lecture 43 - Moment of inertia
- Lecture 44 - Moment of inertia: examples
- Lecture 45 - Moment of inertia of composite bodies
- Lecture 46 - Product of inertia and principal axes of inertia
- Lecture 47 - Principal axes of inertia: examples - I
- Lecture 48 - Principal axes of inertia: examples - II
- Lecture 49 - Harmonic oscillator: simple harmonic motion
- Lecture 50 - Simple harmonic motion: examples
- Lecture 51 - Damped harmonic oscillator
- Lecture 52 - Translation and rotation of rigid bodies
- Lecture 53 - Translation and rotation of rigid bodies: examples
- Lecture 54 - Plane motion of a rigid body
- Lecture 55 - Plane motion of a rigid body: work energy equation
- Lecture 56 - Plane motion of a rigid body: impulse-momentum equation
- Lecture 57 - Three-dimensional dynamics of rigid bodies: angular momentum
- Lecture 58 - Euler's equations of motion
- Lecture 59 - Euler's equations of motion: examples
- Lecture 60 - Revision: Dynamics