

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

NPTEL Video Course - Mechanical Engineering - Mechanical Vibrations

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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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- 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