

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

NPTEL Video Course - Mechanical Engineering - NOC:Sound and Structural Vibration

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Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - The longitudinal wave in vibrating spring
- Lecture 2 - Harmonically excited systems
- Lecture 3 - The concept of coincidence frequency
- Lecture 4 - A classical problem in sound-structure interaction
- Lecture 5 - Classical problem (Continued...)
- Lecture 6 - Uncoupled solution to the classical problem
- Lecture 7 - Uncoupled solution (Continued...).
- Lecture 8 - Introduction to the coupled problem.
- Lecture 9 - The coupled roots
- Lecture 10 - Physical meaning of terms
- Lecture 11 - Derivation of coupled roots using asymptotic method
- Lecture 12 - Coupled roots derivation (Continued...)
- Lecture 13 - Regions of heavy and light fluid loading
- Lecture 14 - Light and heavy fluid loading (Continued...)
- Lecture 15 - The coupled vibration field
- Lecture 16 - The coupled acoustic field and stationary phase
- Lecture 17 - The 2-D structural-acoustic waveguide
- Lecture 18 - The coupled partial differential equations
- Lecture 19 - Derivation of the coupled dispersion equation
- Lecture 20 - A schematic of coupled waves
- Lecture 21 - Derivation of coupled waves using asymptotic method
- Lecture 22 - Asymptotic method (Continued...) and Maple demo
- Lecture 23 - Physics of the coupled waves
- Lecture 24 - Critical points
- Lecture 25 - Heavy fluid loading
- Lecture 26 - Summary of the rectangular waveguide
- Lecture 27 - Impedance and mobility
- Lecture 28 - Derivation of acoustic and vibration response
- Lecture 29 - Derivation of vibro-acoustic response (Continued...)

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- Lecture 30 - Derivation of vibro-acoustic response (Continued...)
- Lecture 31 - Numerical example
- Lecture 32 - Coupled resonance analysis using matrices
- Lecture 33 - Coupled resonance analysis (Continued...)
- Lecture 34 - Sound radiation from a baffled panel
- Lecture 35 - Derivation of pressure response.
- Lecture 36 - Radiation efficiency
- Lecture 37 - Physics of volume velocity cancellation
- Lecture 38 - Derivations in the frequency domain: 1-D
- Lecture 39 - Physics of the vibration spectrum in 2-D
- Lecture 40 - Modal character across the frequency range
- Lecture 41 - Simultaneous radiation from several modes
- Lecture 42 - Panel radiation model using monopoles
- Lecture 43 - Physics of panel radiation using monopole model
- Lecture 44 - Physics of panel radiation using monopole model (Continued...)
- Lecture 45 - Radiation resistance derivation from Maidanikâ s work (Continued...)
- Lecture 46 - Radiation resistance derivation from Maidanikâ s work (Continued...)
- Lecture 47 - Radiation resistance derivation from Maidanikâ s work (Continued...)
- Lecture 48 - Modal average radiation efficiency
- Lecture 49 - Modal average radiation efficiency (Continued...)
- Lecture 50 - Transmission of sound through a rigid panel with flexible mounts
- Lecture 51 - Frequency dependence of sound transmission
- Lecture 52 - Sound transmission through a flexible partition
- Lecture 53 - Transmission loss in different situations
- Lecture 54 - Cylindrical shell vibration
- Lecture 55 - Behavior of uncoupled shell waves
- Lecture 56 - Fluid waves in rigid-walled cylindrical shells
- Lecture 57 - Wave propagation characteristics in flexible cylindrical shells carrying fluid: Fullers paper
- Lecture 58 - Wave impedance of an infinite plate: fluid loading
- Lecture 59 - Fluid loading in a finite plate
- Lecture 60 - Summary of the entire course