Mindluster Platform

About the course Mechanical Systems Design

Mechanical Systems course in hindi, in this course explores principles, design, and analysis of various mechanical systems and their applications in engineering.

Engineering Category's Courses

Course Lesson(37)

Lesson 1 : **Nonlinear Vibration Intro Video**

Lesson 2 : **Lec 1 Introduction to mechanical systems**

Lesson 3 : **Lec 2 Superposition rule Commonly used nonlinear equations**

Lesson 4 : **Lec 3 Equilibrium points potential function**

Lesson 5 : **Lec 4 Force and moment based Approach Lagrange Principle**

Lesson 6 : **Lec 5 ExtendedHamilton s principle**

Lesson 7 : **Lec 6 Use of scaling and book keeping parameter for ordering**

Lesson 8 : **Lec 7 Numerical solution Analytical solutions Harmonic Balance method**

Lesson 9 : **Lec 8 Straight forward expansion**

Lesson 10 : **Lec 9 Lindstd Poincare method**

Lesson 11 : **Lec 10 Method of Averaging**

Lesson 12 : **Lec 11 Method of multiple scales**

Lesson 13 : **Lec 12 Method of generalized Harmonic Balance method**

Lesson 14 :
Lec 13 Free vibration of undamped and damped SDOF systems with quadratic and cubic nonlinearity

Lesson 15 : **Lec 14 Super and sub harmonic resonance conditions**

Lesson 16 : **Lec 15 Bifurcation analysis of fixed point response**

Lesson 17 : **Lec 16 Nonlinear system with hard excitations**

Lesson 18 : **Lec 17 Super and sub harmonic resonance conditions**

Lesson 19 : **Lec 18 Bifurcation analysis of fixed point response**

Lesson 20 :
Lect 19 Floquet theory Hill s infinite determinant Resonance in parametrically excited systems

Lesson 21 : **Lect 20 Parametrically excited pneumatic artificial muscle**

Lesson 22 : **Lect 21 Parametric instability of sandwich plate**

Lesson 23 : **Lec 22 Analysis of periodic quasi periodic and chaotic systems**

Lesson 24 : **Lec 23 Stability and bifurcation analysis of periodic and quasi periodic response**

Lesson 25 : **Lec 24 Analysis of chaotic system**

Lesson 26 : **Lec 25 Numerical methods for finding roots and solutions of ODE**

Lesson 27 : **Lec 26 Time response phase portraits frequency response**

Lesson 28 : **Lec 27 Poincare section FFT Lyapunov exponent**

Lesson 29 :
Lec 28 Pasive and Active vibration absorber with displacement and acceleration feedback

Lesson 30 : **Lec 29 Active vibration absorber with time delay acceleration feedback by HBM**

Lesson 31 : **Lec 30 Application of Active vibration absorber with combination feedback**

Lesson 32 : **Lec 31 Cantilever beam with tip mass for principal parametric resonance**

Lesson 33 : **Lec 32 Cantilever beam with tip mass for combination resonance**

Lesson 34 : **Lec 33 Cantilever beam based piezoelectric based energy harvestor**

Lesson 35 : **Lec 34 Nonlinear synamics of turning operation with delay and internal resonance**

Lesson 36 : **Lec 35 Chatter in rolling mills and dynamic analysis of artificial pneumatic muscle**

Lesson 37 : **Lec 36 Chaotic systems and control of chaos**

Related courses

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