NPTEL Video Course - Mechanical Engineering - NOC:Finite Element Method

Subject Co-ordinator - Prof. Biswanath Banerjee, Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

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

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Lecture 2 - Introduction (Continued...)
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Lecture 6 - Elements of Calculation of Variations - I
Lecture 7 - Elements of Calculation of Variations - II
Lecture 8 - Elements of Calculation of Variations - III
Lecture 9 - Strong Form and Weak Form
Lecture 10 - Rayleigh - Ritz Method - I
Lecture 11 - Rayleigh - Ritz Method - II
Lecture 12 - Weighted Residual Method
Lecture 13 - Weighted Residual Method - Example
Lecture 14 - Concepts of Element and Axial Bar Problem
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Lecture 16 - Axial Bar - II
Lecture 17 - Beam Formulation
Lecture 18 - Beam Stiffness Matrix
Lecture 19 - Problems
Lecture 20 - Beam Column
Lecture 21 - Problem
Lecture 22 - Share Deformable Beam Theory
Lecture 23 - Weak Form and Discretization
Lecture 24 - Reduced Integration Based Stiffness Matrix
Lecture 25 - Problem
Lecture 26 - Problem (Continued...)
Lecture 27 - Element of Formulation
Lecture 28 - Analysis of Plane Truss
Lecture 29 - Analysis of Plane Truss (Computer Implementation)

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Lecture 30 - Analysis of Euler-Bernoulli Beam (Computer Implementation)
Lecture 31 - Analysis of Plane Frame (Computer Implementation)
Lecture 32 - Introduction to FEM in 2D
Lecture 33 - Continuity and Completeness
Lecture 34 - Shape Functions
Lecture 35 - Numerical Integration (Gaussian Quadrature)
Lecture 36 - Gaussian Quadrature in two dimension
Lecture 37 - Weak Form
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Lecture 40 - Example with Quadrilateral Element
Lecture 41 - Computer Implementation
Lecture 42 - 2D Elasticity and Weak Form
Lecture 43 - Weak Form and Matrix Formulation
Lecture 44 - Weak Form to Matrix Form
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Lecture 58 - Different Elements
Lecture 59 - Iso-parametric Formulation and Guass Quadrature
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