

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

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Composites

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

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

- Lecture 1 - Basics of composite materials
- Lecture 2 - Different type of Fibers
- Lecture 3 - Properties of single layer continuous fiber composites
- Lecture 4 - Properties of single layer continuous fiber composites
- Lecture 5 - Strength of single layer continuous fiber composites
- Lecture 6 - Strength of single layer continuous fiber composites
- Lecture 7 - Concept of Tensor
- Lecture 8 - General Anisotropic Material
- Lecture 9 - Specially Orthotropic Material
- Lecture 10 - Specially Orthotropic Material Under Plane Stress
- Lecture 11 - Stress and Strain Transformation
- Lecture 12 - Transformation of Stiffness and Compliance Matrices
- Lecture 13 - Strain - Displacement relations
- Lecture 14 - Relations for stress and strain along thickness of laminate
- Lecture 15 - Stress - Strain variation along Laminate thickness
- Lecture 16 - Force and Moment resultant - Part 1
- Lecture 17 - Force and Moment resultant - Part 2
- Lecture 18 - Important observation related to [A], [B] and [D] matrices
- Lecture 19 - Quasi-Isotropic Laminates
- Lecture 20 - Maximum Stress Theory
- Lecture 21 - Maximum Strain Theory
- Lecture 22 - Importance of Sign of Shear Stress.
- Lecture 23 - Failure Initiation in Composite Laminate.
- Lecture 24 - Progressive Failure of Laminae in A Laminate
- Lecture 25 - Governing equations for composite plates
- Lecture 26 - Force equilibrium in Z-direction
- Lecture 27 - Moment equilibrium equations
- Lecture 28 - Equilibrium equations for composite plates
- Lecture 29 - Boundary conditions associated with different edges of composite plate - Part 1

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- Lecture 30 - Boundary conditions associated with different edges of composite plate - Part 2
- Lecture 31 - Generalized Solution for Semi-Infinite Plate - Part I
- Lecture 32 - Generalized Solution for Semi-Infinite Plate - Part II
- Lecture 33 - Particular Solution for Semi-Infinite Plate
- Lecture 34 - Particular Solution for Semi-Infinite Plate
- Lecture 35 - Particular Solution for Semi-Infinite Plate
- Lecture 36 - Particular Solution for Semi-Infinite Plate
- Lecture 37 - Solution for governing equation related to semi-infinite composite plate
- Lecture 38 - Nature of displacement $u_0(x)$ and how it gets influence by important parameters of lamination sequence
- Lecture 39 - Semi-infinite plate loaded in the x-direction - Part 1
- Lecture 40 - Semi-infinite plate loaded in the x-direction - Part 2
- Lecture 41 - Thermal effects in composite laminates - Part 1
- Lecture 42 - Thermal effects in composite laminates - Part 2
- Lecture 43 - Thermal effects in composite laminates - Part 3
- Lecture 44 - Finite Rectangular Plate
- Lecture 45 - Different Boundary Conditions in Finite Rectangular Plate
- Lecture 46 - Example Based On a Finite Rectangular Plate
- Lecture 47 - Example Based On a Finite Rectangular Plate
- Lecture 48 - Example Based On a Finite Rectangular Plate
- Lecture 49 - Anticlastic curvature
- Lecture 50 - Principle of virtual work
- Lecture 51 - Virtual work method
- Lecture 52 - Virtual work method
- Lecture 53 - Beam (two term solution)
- Lecture 54 - 3rd Interpretation of special Galerkin method
- Lecture 55 - Role of D_{16} and D_{26} Terms On Laminated Plate Response
- Lecture 56 - Role of D_{16} and D_{26} Terms On Laminated Plate Response
- Lecture 57 - Role of D_{16} and D_{26} Terms On Laminated Plate Response
- Lecture 58 - Role of D_{16} and D_{26} Terms On Laminated Plate Response
- Lecture 59 - Free Vibration in Composite Plate
- Lecture 60 - Free Vibration in Composite Plate
- Lecture 61 - Buckling of composite plates
- Lecture 62 - Force equilibrium in z-direction for buckling of composite plates
- Lecture 63 - Moment equilibrium around x, y and z-directions for buckling of composite plates
- Lecture 64 - Buckling of an infinitely long composite plate
- Lecture 65 - Buckling of a simply supported finite plate
- Lecture 66 - Composite plate under bidirectional compression
- Lecture 67 - Shear Buckling in Rectangular Composite Plate
- Lecture 68 - Shear Buckling in Rectangular Composite Plate

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- Lecture 69 - Introduction to Short-Fiber Composites
- Lecture 70 - Theories of Stress Transfer
- Lecture 71 - Theories of Stress Transfer
- Lecture 72 - Modulus of Short-Fiber Composites and Closure