Indian Institute of Science
Centre for Continuing Education

PROFICIENCE COURSES JANUARY –MAY 2026

Analysis and Design of Composite Structures

Faculty:
Dr. G Narayana Naik
Principal Research Scientist,
Dept. of AE, IISc.

Minimum Qualification

B.E / B.Tech. / AMIE / M.Sc. (Engg.)/ AMAeSI (Engg.) (Mechanical, Aero, Civil, Automobile, Marine, Ocean) OR equivalent.

Objectives:

Composites are future materials and have been finding applications in all fields of Engineering (Aero, Civil, Mechanical, Automobile, Marine). Many FEM software packages like ANSYS, MSC-NASTRON, PATRAN, ABACUS, LS-DYNA, etc. are available for Analysis & Design Optimization. One should first understand the Mechanical behavior of the Composite Structures before using FEM packages. After the completion of this course one can use the FEM software packages for better quality of professional work and optimum usage of time, computing and human resources.

Course Fee: Rs. 10,000/- + 18% GST

Schedule: Wednesday (8.00PM to 10.00PM)

Contact us

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Registration Link:

https://iisc.online/admissions/home.html

Syllabus

Introduction: Basic Concepts and Terminology, different types of fibres and matrices, their properties and applications. Micromechanics of Composites: Prediction of properties etc. Macromechanics of Lamina: The theory of elasticity, Constitutive equations of a lamina, transformations, Numerical examples. Failure theories for composite lamina, Numerical examples. Mechanics of Laminated Composites: ABD matrices, etc. Hygrothermal Analysis, Numerical examples. Bending Analysis of Beams: Theory, Numerical examples. Analysis of Laminated composite plates: Classical and first order theories, Energy Method, numerical examples. Buckling analysis of plates: Theory, Numerical examples. Design of laminates using Carpet plots, AML plots, Design of laminates with Numerical examples.

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