



Proficiency Course May -July

# Analysis and Design of Composite Structures (2:0)

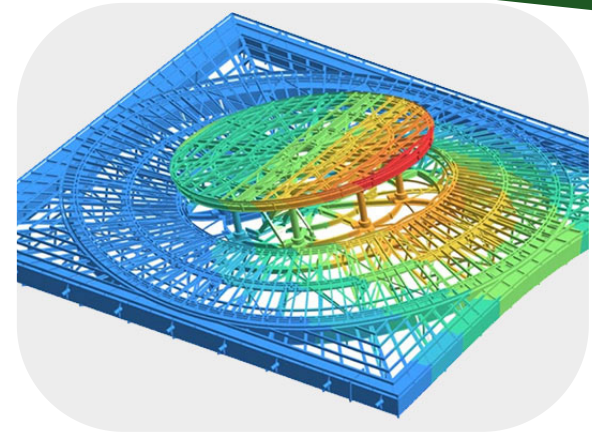


**Course Coordinator**  
Dr. G Narayana Naik  
Principal Research Scientist,  
Dept. of AE., IISc.,



## Objective

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 Content:

Introduction: Basic Concepts and Terminology, different types of fibers and matrices, their properties and applications. Micromechanics of Composites: Prediction of properties etc. Micromechanics 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.

## Who Can Apply

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

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

Online Seats are Limited to 100

Online Classes using Microsoft Teams

**Schedule:** Thursdays - 7:30 pm to 10:00 pm

**Date :** May 1 to July 31,2025

**Registration link:** <https://iisc.online/admissions/home.html>

To Apply Scan here



## Contact us

Centre for Continuing Education

Indian Institute of Science

Bengaluru 560 012, INDIA.

Phone: 91+ 080 2293 2055/2491/2247

More details <https://cce.iisc.ac.in/cce-proficiency/analysis-and-design-of-composite-structures/>