

AE-681
COMPOSITE MATERIALS

L-T-P-D: 3-0-0-0 Units: 9
Course Instructor: Dr. PM Mohite
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Course Content:

- Introduction, Definition, classification, behaviors of unidirectional composites
- Prediction of strength, stiffness
- Factors influencing strength & stiffness failure modes,
- Analysis of lamina; constitutive classical laminate theory, thermal stresses,
- Design consideration, analysis of laminates after initial failure, interlaminar stresses, fracture mechanics, joints and experimental characterization,
- Performance under adverse environment.
- Micromechanics

Reference:

1. Composite Materials and Structures, NPTEL Course.
<http://nptel.iitm.ac.in/courses/101104010/>
2. Mechanics of Fibrous Composites, CT Herakovich.
3. Analysis and Performance of Fibre Composites, BD Agarwal and LJ Broutman.
4. Mechanics of Composite Materials, RM Christensen.
5. Research papers

Examination:

Mid Semester Examination: 35%
Assignments + project + Presentation: 20%
End Semester Examination: 45%

Note:

- Absolute 40% for passing this course. Relative grading above that.
- This is an elective course. Your approach to this course should be professional and should reflect the sense of maturity and responsibility.
- Assignments should be submitted on the due date. Late submission of assignments and cheating in any form will be penalized.
- Attendance will be monitored regularly. Instructor reserves the right to de-register the student from this course on the basis on attendance.
- Hands on commercial software Abaqus/CAE is advised.

Class schedule: As per given time table.