

EGM 6562 - MECHANICS OF COMPOSITE MATERIALS
Common Course Syllabus

Catalog Description: 3 Credits. Prerequisite: Graduate standing. An introduction to composites, basic principles of elasticity, unidirectional composites, short-fiber composites, laminated composites, strength analysis, composite designs, joint criteria, and test methods.

Goals: This course is designed to provide students with knowledge about methods and procedures to analyze elasticity and strength of multi-phase, anisotropic composite materials. The design project will enable students to apply the theory they learned to materials selection and sizing of dimensions of a composite parts.

Topics:

1. Introduction to composites
2. Basic principles of anisotropic elasticity
3. Micromechanics
4. Lamina response
5. Laminate response
6. Strength and failure analysis
7. Free edge stresses
8. Structural response of composite plates
9. Design project

Course Outcomes:

1. The student will understand the various microstructures of composite materials and be able to analyze the mechanical behavior of composite materials.
2. The students will be able to design a simple structure, or structural part made from a composite material.

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