EMAT - Materials Engineering

EMAT 251. Materials Structures and Prop. 3 Credits. (3 Lec) F,S
PREREQUISITE: CHMY 141 or CHMY 121IN. COREQUISITE: M 165Q OR M 171Q. Chemistry and internal structure of solids and the relationship of structure to physical and mechanical properties of metals and nonmetallic solids.

EMAT 252. Materials Struct and Prop Lab. 1 Credit. (1 Lab) F,S
PREREQUISITE: WRIT 101W; CHMY 141 for ME Majors; CHMY 121IN for MET Majors. COREQUISITE: EMEC 250; M 172Q for ME majors; M 165Q for MET majors. This course is intended to supplement current materials lecture course offerings. Provides students with hands-on lab experience to identify and quantify physical, electrical, and mechanical properties of engineering materials via experimental measurements. Experimental procedures and reporting are emphasized.

EMAT 250. Engineering Materials. 3 Credits. (3 Lec) S

EMAT 460. Polymeric Materials. 3 Credits. (3 Lec) F
PREREQUISITE: EMAT 251 or EMEC 250. Interrelationships of molecular structure, morphology and mechanical behaviors of polymers. Topics will also include manufacture and application of polymeric materials.

EMAT 461. Friction and Wear of Materials. 3 Credits. (3 Lec) S
PREREQUISITE: EMEC 326 and EMEC 342 or instructor approval. Introduction to elastic and elastoplastic deformation, microfracture, and surface interactions at the micro- and nano-scale. Application of fundamental knowledge to control friction and wear behavior through lubrication, selection of materials and coatings in practical situations.

EMAT 462. Manufacturing of Composites. 3 Credits. (2 Lec, 1 Lab) S
Alternate Even Years PREREQUISITE: EMAT 251 or EMEC 250. This course will examine the fundamentals of composite manufacturing, focusing on fiber reinforced plastics. Techniques such as open molding, resin transfer molding, pultrusion, and filament winding will be covered.

EMAT 463. Composite Materials. 3 Credits. (3 Lec) F
Alternate Even Years. PREREQUISITE: EMEC 341 or ETME 341. Structure and properties of composite materials and design procedures for composite structures.

EMAT 550. Failure of Materials. 3 Credits. (3 Lec) S

EMAT 551. Advanced Composite Materials. 3 Credits. (3 Lec) S alternate years, to be offered even years.
PREREQUISITE: EMAT 463. Advanced treatment of composite materials, including constituent properties, interfaces, micromechanics, microscopic behavior, modes and mechanisms of failure.

EMAT 552. Advanced Ceramics. 3 Credits. (3 Lec) F
Alternate Odd Years. PREREQUISITE: EMAT 463. Advanced treatment of composite materials, including constituent properties, interfaces, micromechanics, microscopic behavior, modes and mechanisms of failure.
Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Times was used instead of Adobe Garamond Pro.

The editor may contact Leepfrog for a draft with the correct fonts in place.