EML: Engineering: Mechanical

Courses

EML 3011  Mechanics of Materials
3 sh (may not be repeated for credit)
Prerequisite: EGM 2500 AND EGN 3365* AND EML 3022 AND EML 3172L*

Strength and elastic deflection of engineering materials due to loads applied axially, in torsion, in bending, and in shear. Combined stresses and principal stresses. Applications to design of beams and shafts. Computer simulation of stress under loading.

EML 3015  Thermal Fluid Systems I
3 sh (may not be repeated for credit)
Prerequisite: (PHY 2048 OR PHY 2048C) AND (MAC 2312)

Introduction to thermodynamics including the first and second laws of thermodynamics as well as power and refrigeration cycles. Fundamentals of heat transfer including an introduction to conduction, convection, and radiation.

EML 3016  Thermal Fluid Systems II
3 sh (may not be repeated for credit)
Prerequisite: EML 3015 AND EML 3016L* AND MAP 2302

Further study of thermal fluid systems including an introduction to fluid mechanics. Fluid statics, Bernoulli and energy equations, open and closed flow, drag and lift. Heat transfer via convection and radiation.

EML 3016L  Thermal Fluid Systems II lab
1 sh (may not be repeated for credit)
Prerequisite: EML 3016*

Laboratory experiments related to thermodynamics, fluid mechanics, and heat transfer. Thermal systems measurement devices, performance characteristics and design of engineering experiments.

EML 3022  Computer Aided Design and Modeling
3 sh (may not be repeated for credit)
Prerequisite: MAC 2311

Introduction to industry standards for graphical representation of objects and simulation of processes utilizing 2D presentations and 3D modeling.

EML 3172L  Mechanics of Materials lab
1 sh (may not be repeated for credit)
Prerequisite: EML 3011*

Laboratory experiments in materials science, material processing, material stress, strain and bending.

EML 3500  Machine Design
3 sh (may not be repeated for credit)
Prerequisite: EML 3011 AND EML 3172L

Design of machine elements including fasteners, bearings, gears and other power transmission components.

EML 4225  Dynamic Systems
3 sh (may not be repeated for credit)
Prerequisite: EGM 3401 AND MAP 2302

Introduction to modeling and control of dynamic physical systems, vibration analysis, and design of control systems.

EML 4321  Manufacturing Processes
3 sh (may not be repeated for credit)
Prerequisite: EML 3011

An integrated treatment of the analysis of traditional and non-traditional manufacturing processes.

EML 4600  Indoor Environmental Control
3 sh (may not be repeated for credit)
Prerequisite: EML 3016

Gives student a thorough understanding of the fundamental theory of air conditioning design for commercial buildings, including calculating heating and cooling loads along with the proper selection and sizing of air conditioning equipment.

EML 4804  Mechatronic Systems
3 sh (may not be repeated for credit)
Prerequisite: ((EEL 3211 AND EGM 2500 AND EML 4804L* AND MAP 2302)) AND (EEL 4834 OR EGM 3344 OR COP 3014)

This course introduces and demonstrates the synergistic combination of mechanical engineering, electrical and electronics engineering, control engineering, and programming to solve engineering problems and build intelligent systems.

EML 4804L  Mechatronic Systems lab
1 sh (may not be repeated for credit)
Prerequisite: EML 4804*

This is an introduction to Mechatronics by lab experience for interfacing of mechanical and electrical systems. It provides instruction and practical exercises in C programming, microcontroller programming, interfacing with sensors and actuators, data acquisition, communication, and closed-loop control.

EML 4905  Directed Study
1-12 sh (may be repeated indefinitely for credit)

EML 4930  Special Topics in Mechanical Engineering
1-4 sh (may be repeated for up to 6 sh of credit)

Special courses covering selected topics in mechanical engineering.

* This course may be taken prior to or during the same term.