ENGIN. TECH.-MECHANICAL (ETME)

ETME 1020 - Introduction to Manufacturing Processes (3 Credits)

This course provides students with insight and practical experiences in the set-up and operation of basic machines and measuring tools used in manufacturing processes. Significant emphasis is placed on dealing safely with high power machinery, materials, laboratory clothing and machine maintenance. Turning, milling, grinding, drilling and precision measurement are covered, developing students' ability to fabricate mechanical components using traditional machining. Students learn the limitations of traditional machining and prepare for understanding advanced manufacturing technology.

Lecture: 1 hour, Lab: 4 hours

ETME 2500 - Mechanical Systems II (Capstone) (3 Credits)

The purpose of this course is to teach the student how mechanical components are combined and intergraded into complex working systems. The course will stress building assemblies and harnessing electrical controls to the assemblies. This course is designed to cement together the knowledge learned in previous courses within the program. Students will learn to create operational sequences, build systems from standard components, write programs to control them, apply necessary sensors and actuators, and operate and debug their assemblies.

Lecture: 2 hours, Lab: 2 hours

Prerequisite(s): ETME 1010 and ETME 1500

ETME 2930 - Industrial Materials (3 Credits)

This course is an introduction to the different material systems in material science. This course includes an introduction to the structure and properties (such as mechanical, chemical, and physical properties) of materials, specifically metals. Equilibrium phase diagrams and isothermal diagrams are also introduced. This course also introduces various techniques of materials testing such as tensile, creep, bend, hardness, impact, and fatigue testing. Also covered are various techniques of heat treatment such as annealing. This course examines the factors that influence the production and modification of materials into useful forms. Students learn about the various manufacturing processes and machinery used to convert raw materials into finished products. The course gives the student "hands on" experience with materials and processes used in industry. A lab is also utilized to demonstrate various techniques.

Lecture: 2 hours, Lab: 2 hours

Prerequisite(s): (MATH 1200 and MATH 1210 or MATH 1179 and MATH 1181) and ETME 1510