

# MANUFACTURING ENGINEERING TECHNOLOGY (FMS)

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## **FMS 1990 – Independent Study in FMS**

### **1-5 Credit hours**

Provides the student with the opportunity for in-depth work on a special topic within the field of Manufacturing Engineering Technology which the student was not able to pursue in the desired degree of depth in the regular course offerings. During the first week of the semester, the student is required to describe the proposed course of study in writing that he/she wishes to pursue. Such proposal must be submitted to the division Dean for approval and student assignment to a Manufacturing Engineering Technology faculty member for overseeing the project. This course of independent study may be substituted for a Manufacturing Engineering technical course if it is applicable. No more than five (5) credit hours will count toward graduation. This course is graded S/U.

## **FMS 2110 – Basic Robotics and Mechatronics**

### **3 Credit hours**

Provides combined classroom and laboratory study of robotics, with the lecture stressing an overview of robotics. Topics will include such aspects as the historical perspective, mechanics, electronics, sensors, vision systems and the future of robotics. The laboratory will offer a more in-depth study of programming, interfacing and control of a robotic device using off the shelf components.

## **FMS 2130 – Industrial Mechatronics and Robotics**

### **3 Credit hours**

Provides comprehensive training in the operation, programming, troubleshooting, maintenance, etc. of industrial robots. Various applications such as MIG welding, assembly, pick and place will be presented in a work cell environment. Labs will be performed on industrial robots.

## **FMS 2210 – CAM/CNC Machining I**

### **3 Credit hours**

Covers the basic principles of Computer Numerical Control Programming. Emphasis is placed on the manual hand programming of CNC Mills and CNC Lathes using G and M codes. Topics include point to point, continuous path, circular interpolation, canned cycles and four axis programming. The course will introduce and cover the latest processes in Computer Aided Manufacturing (CAM) software. The laboratory assignments will offer the students hands-on experience in each of these areas on industrial grade equipment.

## **FMS 2220 – CAM/CNC Machining II**

### **3 Credit hours**

Continues on from FMS 2210 and provides the student with additional experiences in producing accurate, detailed, engineering drawings on the computer, using AutoCAD, EZCAM and MasterCam to generate programs for the CNC equipment. This course will provide the student with experience in rapid prototyping using 3D and solid types of software and techniques.

**Prerequisites:** FMS 2210.

## **FMS 2320 – Manual Machining I**

### **2 Credit hours**

Provides an in-depth knowledge and practice of lathes, mills, jig borers and grinders. Students will be expected to already have the knowledge of and have used lathe tooling and accessories, and vertical milling machine tooling and accessories. The course is designed to provide more extensive classroom use of basic machine operations on lathes and mills and various grinding and jig boring processes as well as an introduction to electro-chemical and electrical discharge machine procedures.

**Prerequisites:** AMT 1200 or MET 1110 or equivalent.

## **FMS 2340 – Numerical Control Concepts**

### **2 Credit hours**

Introduces programming numerically controlled machines. In addition to terminology, systems and formats employed for programming, the course includes system analysis, axis and motion nomenclature, point-to-point programming and general machine operation.

## **FMS 2460 – Process Tech Instrumentation**

### **3 Credit hours**

Prepares future process operators to observe, read, and interpret the data provided by the types of instrumentation typically found on an operating unit and be able to make decisions to maintain the safe and economical operation of their process unit based on that data.

## **FMS 2470 – Process Technology Equipment**

### **3 Credit hours**

Covers the many kinds of equipment found in common to the different process industries. Special emphasis will be given to equipment like storage tanks and pumping equipment. This will be from an operational, but relatively non-technical viewpoint as seen from the operator's perspective.