EML 4263C – FABRICATION OF ME SYSTEMS
Common Course Syllabus

Catalog Data: 2 CREDITS. An introductory course directed at acquainting mechanical engineering students with the basic machinery and machining operations used to fabricate parts of mechanical engineering systems.

Prerequisite: EGM 3365 – Engineering Materials
Corequisite: EML 4521C Engineering Design

Goals: This course will introduce the students to the following topics: machine shop safety practices; understanding engineering drawings including dimension specifications and tolerances; manual machining operations (sawing, turning, milling, drilling and tapping, etc..) which will be covered in detail and practiced in the machine shop; conversational programming; fundamentals of CNC machining including tooling, coordinate systems, 2D milling toolpaths and CNC turning and milling operation demonstration; introduction to CNC programming and G codes; waterjet, plasma cutting and welding demonstration.

Topics:
1. Machine shop safety practices and OSHA Standards;
2. Understanding engineering drawings;
3. Laboratory/machine shop activities including manual machining operations (sawing, turning, milling, drilling, tapping and others) and conversational programming will be covered in detail and practiced in the machine shop;
4. Fundamentals of CNC machining and programming;
5. Waterjet, plasma cutting and welding demonstration.

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)

1. Students will understand machine shop safety procedures and OSHA Standards. (4)
2. Students will be able to read engineering drawings and gain an understanding of dimensions and tolerances. (2)
3. Students will demonstrate an understanding of manual machining operations (sawing, turning, milling drilling, tapping and others) and conversational programming which will be practiced in the machine shop. (6)
4. Students will understand the fundamentals of CNC machining and their programming. (2)
5. Students will understand the waterjet, plasma cutting and welding operation. (6)

Design Content:
This course has no design content.

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