

MFET 111C : Manufacturing and Materials Processing

Provides a basic understanding of traditional methods of materials processing used in product manufacturing. Through lectures, demonstrations, and first-hand lab exposure, the student is given the theory and applications of each process. The following are covered: casting, extruding, forging, molding, forming, heat treating, joining, and an introduction to machining methods, both conventional and numerically controlled. A \$20 materials fee will be assessed for all students.

Credits 4

Lab/Practicum/Clinical Hours 3

Lecture Hours 3

Learning Outcomes

- Identify basic mechanical properties of typical engineering materials and methods of modifying them.
- Use basic precision measuring equipment and/or tools.
- Read and interpret engineering drawings, including GD&T.
- Be versed in machine shop safety practices and procedures.
- Distinguish between processes, appreciate their advantages/disadvantages, and design basic processing sequences.
- Set up and operate the following machines and demonstrate safe operating procedures: cut-off saw, lathe, vertical milling machine, and conventional surface grinder.
- Produce a sand casting given a simple pattern and related engineering documentation.