

ENGRI/MAE 1170 (formerly 117). Introduction to Mechanical Engineering

Course (catalog) description: Fall. 3 credits

Prerequisites: none

Introduction to fundamentals of mechanical and aerospace engineering. Students learn and understand materials characteristics, the behavior of materials, and material selection for performing engineering function. They also learn fundamentals of fluid mechanics, heat transfer, automotive engineering, engineering design and product development, patents and intellectual property, and engineering ethics. In the final project, students use the information learned to design and manufacture a product.

Designation as a 'Required' or 'Elective' course: Elective

Textbook(s) and/or other required material: *An Introduction to Mechanical Engineering*, Jonathan Wickert, 2nd edition Thomson/Brooks/Cole, 2006, or equivalent.

Topics covered: The topics, listed below, may be changed at the discretion of the instructor, as long as they are representative of the mechanical engineering curriculum.

- Forces and Moments
- Materials and Stresses
- Design
- Motion of Machinery
- Fluids
- Thermal Sciences/Energy

Class/laboratory schedule: Two 50-minute lectures and one 2.5-hour lab each week.

Contribution of course to meeting the professional component:

This course contributes to (b), the engineering topics portion of the professional component.

Course outcomes and their relation to ABET outcomes a-k:

1. Gain experience with unit conversion, estimation, approximations, and critical thinking. (a, e)
2. Gain a basic understanding and ability to solve problems in major areas of the mechanical engineering curriculum (a, e)
3. Have experience designing and building a device (e.g. a small battery-powered car), and performing and documenting laboratory experiments (b, c, d, g)
4. Become comfortable identifying a system and its interactions with surroundings and using this approach to solve problems (a,e)

Outcome Assessment: Outcomes will be assessed using grades on specific homework and exam questions, lab reports, and design reports.

Person(s) preparing this description and date of preparation:

Elizabeth M. Fisher, 4/24/08