

ENGR 102 : INTRODUCTION TO ENGINEERING II

Transcript title

Intro to Engineering II

Credits

3

Grading mode

Standard letter grades

Total contact hours

50

Lecture hours

20

Lab hours

30

Prerequisites

MTH 111Z or higher or minimum placement into Math Level 20.

Recommended preparation

ENGR 100 and MTH 112Z.

Course Description

Explores design strategies and design thinking to define multiple options to engineering problems that satisfy technical and social requirements. Practices professional engineering and communication skills that contribute to the success of teams. Applies appropriate hardware and software tools to implement one or more solutions to a design problem.

Course learning outcomes

1. Apply convergent and divergent thinking to a team design project.
2. Model best practices in collaborative problem solving in engineering.
3. Apply computational tools to solve an engineering problem.
4. Create a work plan for an engineering team design project.
5. Employ best practices in technical communication.
6. Diagnose errors and uncertainties in an engineering solution.

Content outline

- Design Thinking
- Design Strategies
- Collaborative Problem Solving
- Tools: Software
- Tools: Hardware
- Team Planning
- Solution Criteria and Evaluation
- Practice Engineering Application
- Practice Team Problem Solving
- Practice Technical Communication

The outcomes of this course will be met through a project based curriculum that aligns with content in ENGR 100. A primary focus of this course will be CAD/CAM skills and fabrication techniques that are central to modern engineering practice. This course is designed to have adaptable content to serve the needs of a range of different engineering programs. Hands on design and build skills will be embedded along with introductory applications of engineering and mathematical tools. Documentation of projects through technical writing as well as public presentations will form a natural part of the curriculum.

Required materials

Students will need calculators, access to the network, and access to suitable computer resources for software and other tools necessary for the projects in this course. Students may be required to purchase a license for CAD/CAM software associated with this course.