ENGR 103 : INTRODUCTION TO ENGINEERING III

Transcript title

Intro to Engineering III

Credits

3

Grading mode

Standard letter grades

Total contact hours

50

Lecture hours

20

Lab hours

30

Prerequisites

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

Recommended preparation

ENGR 100 and ENGR 102.

Course Description

Introduces fundamental computational concepts and practices with algorithmic thinking in the context of engineering problem solving. Explores problem-solving skills, algorithm design, debugging, and writing programs using universal design principles. Examines limitations in these problem solutions related to social or structural inequities. Applies these skills and insights through applications to engineering problems.

Course learning outcomes

1. Adapt technical solutions from related problems to current computational problems in engineering.
2. Apply best practices to implementation of computational solutions to engineering problems.
3. Apply coding skills to engineering problem solving.
4. Distinguish the roles of modeling and analysis in engineering practice.
5. Assess limitations within computational solutions as they relate to social or structural inequities.
6. Modify an academic and professional plan based on experiential engineering activities.

Content outline

- Computational Options
- Computational Design
- Modeling and Analysis
- Algorithmic Models
- Model Limitations
- Error Checking
- Practice Engineering Application
- Practice Computational Tools
- Engineering Reflection
- Professional Plan

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. The purchase of hardware associated with the project based content may be required.