ENGR 1220: Introduction to Engineering

A. COURSE DESCRIPTION

Credits: 3
Lecture Hours/Week: 2
Lab Hours/Week: 2
OJT Hours/Week: *

Prerequisites:
This course requires any of these five prerequisites
- Writing College Level
- Institutional Defined Writing Waiver
- ENGL 0900 - College Prep Writing (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5
- ENGL 1410 - Composition I
- ENGL 1460 - Technical Writing

Corequisites: None
MnTC Goals: None

This course provides an overview of the engineering field, covering the engineering profession, the industries in which engineers work, and the engineering method of problem-solving. The course explains the engineering education pathways and explores effective strategies for students to reach their full academic potential. The course presents an introduction to engineering design including fabrication, use of computer packages, and visual, oral, and written communication skills. A spreadsheet program (Microsoft Excel) and a high-level computer language (MATLAB/FREEMAT) are an integral part of the course.

B. COURSE EFFECTIVE DATES: 04/29/2024 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Explore engineering disciplines and careers
2. Discuss engineering ethics
3. Demonstrate visual communication: rapid sketching formal graphics, CAD software, schematics
4. Demonstrate effective written communication
5. Demonstrate oral communication: formal presentations, informal presentations, critiques, PowerPoint
6. Demonstrate effective teamwork in performing engineering activities
7. Explore engineering design: design process, creativity team building, project planning, fabrication of engineering designs: microprocessors, motors, electronics, prototyping
8. Utilize engineering software: Excel, WorkingModel, ProEngineer, MATLAB or similar

D. LEARNING OUTCOMES (General)

1. Describe the engineering profession, engineering ethical principles and standards, academic pathways, and the engineering disciplines.
2. Demonstrate knowledge of effective practices for writing technical engineering documents and making oral presentations.
3. Explain the engineering analysis and design process.
4. Analyze data collected during laboratory exercises designed to expose students to the different engineering disciplines.
5. Demonstrate teamwork skills in working on an engineering design team.
6. Describe the impact of engineering on contemporary society.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted