

Introduction to Engineering

Dual Enrollment Spring (Optional¹)

Course Description The Introduction to Engineering course is a course designed to introduce the profession, ethics, and diversity of the field of engineering to students. The course will expose students to the various engineering disciplines: Biological Engineering, Civil Engineering, Chemical Engineering, Computer Science, Construction Management, Electrical Engineering, Environmental Engineering, Industrial Engineering, Mechanical Engineering, and Petroleum Engineering. Specifically, this course will emphasize that the engineer is a team worker who needs strong skills in technical problem solving, engineering design, ethical decision making, and communicating to diverse audiences.

- Course Objectives**
- Demonstrate an understanding of academic honesty and ethics pertaining to the profession of engineers.
 - Demonstrate effective communication skills, through team working, oral presentations, and good written communication.
 - Demonstrate an awareness of the connections between engineering and the wider world.
 - Use the engineering design process to create, test, and redesign discipline specific projects to gain a better appreciation of the diverse engineering fields.

Assessing Performance Students are assessed by obtaining weekly grades on the following: Work Ethic, Quizzes, Lab Reports, Presentations, and Reflections.

Equipment	Cost/Unit
Consumable material	\$500
Reusable material	\$1,000
Classroom set of computers	\$0 if you already have some, \$500-600 per computer if you need to purchase

First Semester

Unit 1: Ethics and Professionalism*	Engineering Creed, Ethical dilemma situations and discussions
Unit 2: Communication, Teamwork, and Work Ethic*	Oral, Written, Technological, and Visual communication, Value of Work Ethic
Unit 3: Engineering Design Process*	Understand and explore the engineering design process
Unit 4: Lab Report and Presentations	Understand how to write each part of the lab report and the characteristics of a good presentation
Unit 5: Intro to Arduino	Basic electrical circuits and computer programming
Unit 6: Intro to Drafting	Understand Multiview drawings and isometrics
Unit 7: Math and Graphing	Sail Car Activity with velocity and acceleration, make/create a table, make/create a graph, analyze data, dimensional analysis, percent error
Unit 8: Additional Engineering Design	Pick from the Fluor projects if time permits

Second Semester

Unit 9-18: Examination of Disciplines*	Guest Speaker, Hands-on project, Presentation of results for each of 10 engineering disciplines
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¹ This course may be offered in full year format with with Dual enrollment in Spring or simply as a full year non-dual enrollment course

*These units are the dual enrollment content