# Introduction to Engineering - Core

## Full Year - Dual Enrollment Spring (Optional[1])

**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 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.

**Course Essentials**

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

**First Semester**

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| **Unit 1: Google Drive** | Using Google Driven (or other LMS) for graphs, writing as a team, and data collection |
| **Unit 2: Lab Report and Presentations** | Understand how to do research, make/create a table, make/create a graph, analyze data, dimensional analysis, percent error |
| **Unit 3: Project Management** | Budgets, Gannt Charts, project management |
| **Unit 4: Ethics and the Field of Engineering** | Engineering Creed, Ethical dilemma situations and discussions |
| **Unit 5: Communication, Teamwork, and Work Ethic** | Oral, Written, Technological, and Visual communication, Value of Work Ethic |
| **Unit 6: Engineering Design Process** | Understand and explore the engineering design process |
| **Unit 7: Drafting** | Design a chair, understand Multiview drawings |
| **Unit 8: Arduino** | Basic electrical circuits and computer programming |

**Second Semester**

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| **Unit 9-18: Examination of Disciplines** | Guest Speaker, Hands-on project, Presentation of results |

[1] This course may be offered in a single spring semester Dual Enrollment format

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