Introduction to Engineering (ENGR D010 – Section 01Z)

De Anza College Spring 2021

Ali Saeidi Ashtiyani

Lectures:

Mon-Wed 09:30 AM-10:45 AM

Join Zoom Meeting
https://fhda-edu.zoom.us/j/99776190797?pwd=VmJKMkFJQWlzdEtmaHNBQTEzZlcwZz09

Meeting ID: 997 7619 0797
Passcode: 874030

Office hours:

Office Hour: Tuesdays 5:30 to 6:30pm (BY APPOINTMENT)

https://fhda-edu.zoom.us/j/95909058655?pwd=YUNnTUF3aWpWYk1FT2p4ZHlwNmhNZz09

Meeting ID: 959 0905 8655

Passcode: 137866

Email: saeidiashtiyaniali@fhda.edu

Course objectives

Introduction to Engineering is designed to allow students to explore engineering through hands-on design projects. Students learn about various aspects of the engineering profession and

acquire both technical skills and nontechnical skills, in areas such as communication, teamwork, and engineering ethics. Students would learn about human factors as well as design factors within an overall process and including product life cycle stages.

By designing and implementing an actual engineering project, students will be exposed to many ideas and principals. Students will form teams of 2-3 and choose projects which excite them – and importantly, projects that have a good purpose. Successfully completing the project is not required; this provides the opportunity to deeply understand and analyze different technical and non-technical aspects of the project.

The theory is an important part of the projects. The actual goal of the projects is to prove or disprove a theory by gathering supporting data by creating proper tests and analyzing why or why not the expected outcome was achieved.

It is highly recommended to create a diverse team so students would get a good sense of the different engineering fields and how they overlap. Students will understand the importance of team work and leadership. They would learn to understand the concept of project management by experiencing the importance of organizational skills and time management skills while keeping track of the budget. They would create PERT and Gantt chart.

Throughout the course, students will be reminded to check for engineering ethics.

Students would be able to have several mini-presentations and draft reports opportunities before submitting their final ones. As a class, students would do peer evaluations by providing constructive feedbacks.

Course Requirement:

Special interest in engineering.

Text

Recommended but not required

ENGINEERING YOUR FUTURE, A Comprehensive Introduction to Engineering By William C. Oakes, PhD 2009-2010 Edition

A Whole New Engineering, The Coming Revolution in Engineering Education by DAVID R. GOLDBERG and

Mark SOMERVILLE

Mentor interview

And the overall course grade (letter-grade) will be assigned based on the distribution below:

- 100% to 97%: A+
- 97% to 94%: A
- 94% to 90%: A-
- 90% to 87%: B+
- 87% to 84%: B
- 84% to 80%: B-
- 80% to 77%: C+
- 77% to 74%: C
- 74% to 70%: C-
- 70% to 67%: D+
- 67% to 64%: D
- 64% to 60%: D-
- <60%: F

Important Notes:

- Progress reports and presentations must be submitted on time otherwise up to 50% credit will be given.

- Some Lectures times will be provided to student to prepare/discuss projects material.

- Project reports, PPTs, and the presentation must be on time. No exception!

- All team members must be present and participate in the presentation; otherwise, they will lose up to 50% credit.

- Equal contribution to projects and pair reviews has 10% of your overall grade.

Grading Policy

Written Reports

15% Format

10% Summary/Introduction/Abstract

10% Design/Idea

10% Theory

20% Project management such as Pert, Gantt, budget, Part, task assignment, …

20% Test/Verification/Result/Setup- technique and interoperations

10% Conclusion

5% References/Appendices

PPT

25% Presentation (team and individual)

10% Format

20% Body/Overall content

20% Theory and procedures

20% Testing, Verifications & Outcome/Results

5% Answering Questions

Overall Course Grade Weights

25% Discussions / Assignments/ Activities / Quizzes

35% Progress Reports and Presentations

30% Final Project Report and Presentation

10% Pair Reviews (Contribution to project)

Please note that the instructor will create a master project folder on Dropbox during the first week of class to create access for each team. Students are required to contentiously upload their work **to** this folder. Students are responsible for checking the calendar folder on a regular basis to see if there is a change in the schedule.

Course outline:

Week	**Assignments/ Activities**
1	**Introduction** **Gantt Chart- Lecture** **Pert Chart- Lecture** **Team Building- Lecture**
2	**Team Creation** **Formats (Proposal, Reports, PPTs)- lecture**
3	**Project Proposal** **Theory- Lecture** **Technical Topics (Circuits)**
4	**Proposal Presentations**
5	**Planning and development – Lecture** **Technical Topics (Basic Physics)**
6	**Project Progress report and PPT**

7	**Human factor - Lecture** **Technical Topics (Python)**
8	**Project Presentation- 2nd PPT** **Technical Topics (Python Cont.)**
9	**Human factor - Lecture** **Soft Skills - Lecture**
10	**Ethics- Lecture** **Resume skill – Lecture** **Interview skill - Lecture**
11	**Final Presentation PPT and written report**
12	**Final Presentation time: Monday from 9:15 AM to 11:15 AM**

Student Learning Outcome(s):

*The student will be able to analyze, graph and develop a formula for a given data set.

*The student will be able to prepare and write technical specifications and documentation, and be able to orally present them.

*The student will work collaboratively on an engineering team.