Introduction to Engineering

De Anza College Winter 2016

Manizheh Zand

Office S48

Office hours:
Wed   8:30 am to 9:30 am
Email:
    zandmanizheh@fhda.edu

Course objectives

M.A. Rosenoff: "*Mr. Edison, please tell me what lab rules you want me to observe.*"

Thomas Edison: "*There ain't no rules around here. We're trying to accomplish something.*"

A whole New Engineer by David E. Goldberg and Mark Somerville

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 non-technical 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 project 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.

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:
Begin this course with an open mind.

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

Grading Policy

The weights of the whole course work assignments are listed as below:
- **Project Proposal**   **5%**
- **Pert & Gantt chart**   **5%**
- **Theory**   **5%**
- **Part status/order**   **5%**
- **Draft PPT**   **10%**
- **Draft Report**   **10%**
- **Final PPT**   **10%**
- **Final Report**   **10%**
- **Excel-HW**   **10%**
- **Written Assignment**   **10%**
- **Quizzes**   **10%**
- **Class participation**   **10%**

And the overall course grade (letter-grade) will be assigned based on the distribution below:
- 100% to 86%:   Distributed for A+, A, and A-
- 85% to 71%:   Distributed for B+, B, and B-
- 70% to 56%:   Distributed for C+, C, and C-
- 55% to 41%:   Distributed for D+, D, and D-
- 40% and below: F

Excel HWs and written assignments must be submitted on time otherwise up to 50% credit will be given

No Makeup quiz will be given

Project reports, PPTs and the presentation must be on time. No exception!
All team members must be present and participate during presentation; otherwise they will lose up to 50% credit.

Class participation is <u>mandatory</u> if a guest speaker is scheduled and during class presentation

Please refer to the calendar for the days that each team must be present and work on their projects during class time.

Written Reports
10%   Overall content
10%   Format
10%   Summary/Introduction/Abstract
15%   Theory
20%   Project management such as Pert, Gantt, budget, Part, task assignment,…
20%   Test/Verification/Result/Setup- technique and interoperations
10%   Conclusion
5%   References/Appendixes

PPT
20%   Overall content
10%   Format
30%   Presentation (team and individual)
10%   Theory
30%   Verifications/Outcome

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 contientiously upload their work **to** this folder. Students are responsible to check the calendar folder on a regular basis to see if there is a change in the schedule.

Course Schedule: Please refer to the calendar folder