Introduction to Engineering (ENGR 10) (47401)

De Anza College Spring 2024

Saied Rafati

Albert Einstein:

"ANYONE WHO HAS
NEVER MADE A
MISTAKE HAS NEVER
TRIED ANYTHING NEW"

Class hours:

M-Tu_W-Th (April 8th-June 28th) (In person)
9:30 am -11:20 am

Students hours:

M,Tu,Wed,Th, 11:30AM-12:30PM @Physical Science and Technology Village and by appointments.
Email: rafatisaied@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 non-technical skills, in areas such as communication, teamwork, and engineering ethics.

By designing and implementing an actual engineering project, students will be exposed to many ideas and principals. Students will form teams of 4-5 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.

I will do my best 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 Gantt chart.

Students would be able to have several mini presentations before submitting their final presentation and report.

Course Requirement:

Begin this course with an open mind.

Text

ENGINEERING Fundamentals and problem Solving (7th Edition by A. Eide, R. Jenison, S. Mickelson, L. Northup). The 6th Edition is also accepted and is less expensive.

Course Outline:

Chapters 1-3,4,5,12,17, Arduino, Solar Cells, SolidWorks (OnShape), Microsoft Excel (engineering applications), Midterm Exam**,** Final Exam

Week1 Ch1, presentation 1

Week2 Ch2, Ch3, introduction to Excel

Week3 Ch4, Excel, Final Project Naming

Week4 Ch5, Excel Plots

Week5 Solar Cell Technology

Week6 Midterm, Final project Draft presentation

Week7 Arduino

Week8 OnShape 3D modeling

Week9 Chapter 17

Week10 Chapter 12

Week11 Final project Demo, presentation, report / Final exam review

Week12 Final Exam.

SLO(Student Learning Outcomes)

1. Analyze and present data in solving engineering problems.
2. Demonstrate an ability to think logically and critically in solving problems.
3. Prepare technical documents and deliver effective oral presentations.
4. Demonstrate teamwork skills required on an engineering design team.

Grading Policy

Class/Lab Participation	5%
Homework	15%
Midterm	15%
LAB	20%
Final Group Project	25%
Final Exam	20%

Final Project Details:

Project Proposal/Creativity	10
Group participation/Lab Activity	10
Market Survey	5
Part Status/order	5
Gantt Chart	10
Test Description	10
Conclusion/Recommendation	10
Final Report	20
Final PPT/Presentation	20

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

- 100% to 88%: A
- 87% to 75%: B
- 74% to 62%: C
- 61% to 49%: D
- 48% and below: F

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

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.

Please refer to the calendar/email for the days that each team must be present to present their project during class time.

Project report(Draft and Final) must contain Market survey, Gantt Chart ,Part status and cost for each item and total cost, analysis

CLASS ATTENDANCE

Students are expected to attend all sessions of each class. Instructors may drop students from the class if they fail to attend the first-class meeting, or when accumulated unexcused hours of absences exceed ten percent of the total number of hours the class meets during the semester. Moreover, an instructor may drop from the class any student who fails to attend at least one class session during the first three weeks of instruction.

IMPORTANT DATES

(Check the De-Anza College Website as well for any changes)

Last day to Add Class (April 19)
Last day to DROP class without a "W" is April 20
Deadline to submit P/NP (check with college)
Last day to DROP with a "W" is May 31
Final Exam Week June (24-28)
Holidays
Memorial Day Holiday (May 27)
Juneteenth Holiday (June 19)

Honesty is the foundation of academic work

Occasionally, you may feel overwhelmed by the amount of work you need to accomplish. If you cheat, you may get a warning, receive no credit for the assignment or be referred to the Vice President of Student Services for disciplinary action. You would also be de-valuing your resulting degree or certificate when you enter the workforce or transfer and cannot meet the expectations that your degree or certification requires.

Here are some examples of what you should and should not do:

What not to do

- Pay someone to do your homework/project. Recent reports show that people who sell papers or do schoolwork for pay by students may end up "blackmailing" those students in a variety of situations. For example, if the student defaults on the agreed amount of compensation, does not purchase additional services, etc., these people have been known to notify the college of the misbehavior of students caught in this kind of trap.
- Use applications on the web to find answers on tests or quizzes. If I suspect that your work is copied from an application, I'll set up a meeting with you and ask you to do a similar problem with me.
- Copy answers or work from another student.
- Ask another student to do your work for you.

What to do

- Trust the value of your own intellect.
- Demonstrate your own achievement and abilities.
- Ask for help from me, or your classmates
- Start a study group with your classmates

CODE OF STUDENT CONDUCT

The district shall enforce a student code of conduct the purpose of which is to promote and maintain orderly conduct of a responsible student body in a manner compatible with the District and College function as an educational institution (Education Code 76030)

What should you do if you can't reach me?

- I will respond to Canvas Inbox messages within 3-4 hours. If you don't hear from me within this timeframe (on weekend may be longer) , please email me again! I'm human and sometimes I miss messages.
- You can also try messaging me via my email: rafatisaied@fhda.edu
- If you are looking for information that is not specific to our class, you can find updates on the De Anza homepage, Facebook or Twitter page. They may have updates or news before I do!

Name and pronoun

If you'd like to be known by a name different from the name on the roll sheet or if you have a personal pronoun, please contact me, and I will make every effort to call you by the name and pronoun you use.

What you can expect from me

- I will treat you with dignity and respect and be flexible to support your individual needs.
- I will provide you with a clear, organized course that is designed to ensure you meet our course outcomes in a meaningful manner.
- I will provide a variety of assignments to ensure your learning needs are met.
- I will grade assignments in a timely manner to facilitate your success on future assignments.
- I will be actively present in your learning.
- I will provide a supportive and safe environment for you to share and discuss ideas with your peers.
- I will reach out to you when I sense that you need support.

What I will expect from you

- Treat me and your peers with dignity and respect.
- Strive to be an active participant in this course.
- Maintain an open line of communication with me so I understand how to support you.
- Aim to meet due dates. Contact me if an emergency arises.
- Do your best to have patience with technology. There will be hiccups; expect them. We will get through them together.

What we can expect from each other

- We won't be perfect. We are human and will make mistakes at times. We will view mistakes as an opportunity to learn and grow.
- We will all strive to contribute regularly in collaborative activities to ensure all members of the community have ample opportunity to read/listen, reflect, and respond to all ideas.
- Disagreements are part of learning and growing, but we will always treat one another with dignity and respect. If you sense a negative emotion surfacing within yourself, step away for a while; reflect on what is happening; then return and respond by focusing on the issue, not the person.

Is there anything else you would like to add to any one of these lists? If so, you will have the opportunity to share your suggestions during the first week of school.

Student Learning Outcome(s):

• Analyze, graph and develop a formula for a given data set.

• Prepare and write technical specifications and documentation, and be able to orally present them.

• Work collaboratively on an engineering team.

Office Hours:

M,T,W,TH 11:30 AM 12:30 PM In-Person Physical Science and Technology Village S55