

ENGR 10A - Intro to Engineering

CRN 11284 - Fall 2020

Online Section

REQUIRED TEXT: Studying Engineering: A Roadmap to a Rewarding Career. 4th Edition, Landis, Raymond B., Discover Press, 2013, ISBN # 978-0-9793487-4-7.

INSTRUCTOR: David Argudo
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Office Hours: Thursday 1:30 PM – 2:30 PM via ZOOM.

Description

Engineering 10A introduces students to the engineering profession. The course explains the engineering education pathways and explores effective strategies for students to reach their full academic potential. Topics will include an introduction to the various engineering disciplines; the role of engineers and engineering in society; the curriculum requirements for the various engineering disciplines at different four-year institutions; academic success strategies; personal and professional development techniques; an introduction to the engineering design process; an introduction to engineering problem-solving methodologies; engineering ethics; communication skills; and working as a member of a team.

Credit hours: 2 (3 hours of work per credit hour per week = 6 hours of work per week for the class)

Student Learning Outcomes

By the end of this course, a student should:

1. Explore the engineering profession and compare and contrast the various disciplines.
2. Identify and describe academic pathways to bachelor's degrees.
3. Develop and apply effective strategies to succeed academically.
4. Explain engineering ethical principles and standards.
5. Demonstrate knowledge of effective practices for writing technical engineering documents and making oral presentations.
6. Analyze engineering problems using the engineering design process.
7. Demonstrate teamwork skills in working on an engineering design team.

Last Day for Administrative and Student Withdrawals

This date is stated in the *Schedule of Classes*. After the withdrawal date, no "W" can be given, and you must receive a regular grade (A-F) in the course. I urge any student who is contemplating withdrawing from the class to see me first. You may be doing better than you think. Either way, I want to be accessible and supportive. I do not believe in "weed out" classes, and I consider you to be much more than just a name or number. If you need assistance, do not hesitate to contact me (my e-mail address is listed above). I am here to help.

IMPORTANT NOTICE

If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

Students requiring special services or arrangements because of hearing, visual or other disability should contact their instructor, counselor or the Accessible Education Center.

Accessible Education Center (AEC): <https://www.gavilan.edu/student/aec/index.php>

Gavilan is committed to compliance with the Americans with Disabilities Act and the Rehabilitation Act of 1973 (section 504).

" The Accessible Education Center (AEC) at Gavilan College provides programs, services and support to help students with disabilities succeed in school. We strive to equalize student educational opportunities and improve access so that every student can participate fully in all aspects of college programs and activities. If you have a verified disability and need academic modifications or services, we are here to help you move toward your goals. Please come by the AEC (we're in Library 117) and see what we can do for you!"

If you have any special needs or disabilities which may affect your ability to succeed in college classes or participate in college programs/activities, please contact the AEC office. Upon consultation and documentation, you will be provided with reasonable accommodations and/or modifications.

For a complete list and description of services go to:

<http://www.gavilan.edu/student/index.php>

Academic Honesty

Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Disciplinary proceedings may be initiated by the college system against a student accused of scholastic dishonesty. Penalties can include a grade of "0" or "F" on the particular assignment, failure in the course, academic probation, or even dismissal from the college. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion.

For a complete description go to:

https://www.gavilan.edu/student/handbook/policies_procedures.php

Note: After the withdrawal date, no "W" can be given, and you **must** receive a regular Grade (A-F) in the course.

FINAL GRADES

Final grades are based on:

HW*	30%
Interview Project	15%
Essay Project	25%
Design Project	30%
Extra Credit	5%
Total	100%

* Best 12 out of 13 HWs

The **course grade** is then obtained from the overall score:

Final Score	90 - 100	80 - 89	70 - 79	60 - 69	< 60
Letter Grade	A	B	C	D	F

INTERVIEW PROJECT

Each student is required to interview an Engineer. Through this project, you will learn about the impact that engineers have in your community. If you know an engineer, this is a great chance for you to learn more about what they do! More details can be found on Canvas.

ESSAY PROJECT (How to become a World-Class Engineering Student)

Engineers design products or processes to meet desired needs. Your desired need or goal (hopefully) is to graduate with your Bachelor of Science degree in engineering. But what is the process you need to apply to be successful in achieving this goal?

This project in combination with the lecture is intended to help you design your process to success. The textbook "Studying Engineering" will be an excellent resource as well as many of the assignments and homework. As you will learn and study throughout the semester you will encounter objectives that are essential to be successful. More details can be found on Canvas.

DESIGN PROJECT

Each student is required to participate in a semester design project. You will design an engineering device to perform a simple task, write a design report, and make a presentation of your design. More details can be found on Canvas.

Extra Credit

You will find an opportunity to make 5% extra credit point by actively contributing to the class discussions in canvas.

* Every item listed in this Course Policy document is open for re-evaluation, change, deletion, or replacement by the instructor at any time during the course and it will be communicated by the instructor.

Schedule

NOTE: Please be mindful that dates and schedules are subject to change.

Week # 1 – Starting a path to success!

Class Lecture: Introduction to the course, what to expect from this course, logistics
What is success?
Reading Assignment: Preface and Prologue
Assignments: HW 1

Week # 2 – Tips to become a successful engineering student.

Class Lecture: Keys to Success in Engineering Study
Growth Mindset and Grit
Reading Assignment: Chapter 1
Assignments: HW 2

Week # 3 - Introduction to the Engineering Profession

Class Lecture: What is engineering?
Fields of Engineering
Reading Assignment: Chapter 2 (Sections 2.1-2.6)
Assignments: HW 3

Week # 4 - Introduction to the Engineering Profession (continue)

Class Lecture: The Engineering Profession
More new and exciting engineering fields.
Reading Assignment: Chapter 2 (Sections 2.7-2.10)
Assignments: HW 4

Week # 5 – Getting to Know Engineers!

Class Lecture: Interview Project Description
Understanding the Teaching/Learning Process.
Reading Assignment: Chapter 3
Assignments: HW 5

Week # 6 – Becoming an expert learner!

Class Lecture: Learning how to learn
Learning Styles and Strategies
Reading Assignment: Chapter 4
Assignments: HW 6

Week # 7 – Problem Solving, Creativity and Critical Thinking

Class Lecture: Problem Solving, Decision Making
Creativity and Critical Thinking
Reading Assignment: Chapter 5
Assignments: HW 7

Week # 8 – Transfer Path to a 4 year college

Class Lecture: Gavilan Resources
CSU and UCs transfer information
Reading Assignment: Chapter 8.1-8.5
Assignments: HW 8

Week # 9 – Road Map for your Engineering Major

Class Lecture: Gavilan Engineering Degree
How to use ASSIST
Assignments: HW 9

Week # 10 – Engineering Ethics

Class Lecture: Ethics and Morality
Essay Project Description
Reading Assignment: Chapter 8.6-8.8
Assignments: HW 10
Interview Project due Oct 30

Week # 11 – The Engineering Design Process

Class Lecture: Introduction to the Design Process
Assignments: HW 11 (Build a device using Cardboard)
Work on Essay Project

Week # 12 – Tinkercad and 3D design

Class Lecture: Computer Aided Design - Tinkercad
Assignments: HW 12 (Tinkercad Chain)
Work on Essay Project

Week # 13 – Our Design Project

Class Lecture: Design Project Description
Sketching
Assignments: Submit Sketch for your Design project
Essay Project Submission due Nov 20

Week # 14 – Design Project Prototype

Class Lecture: Prototyping
Assignments: Submit Tinkercad Drawing and 1st physical prototype of your design project

Week # 15 – Final Prototype and Engr. Presentations

Class Lecture: Testing and the iterative process
Description of the Engineering Presentation for your Design Project.
Assignments: Work on you final prototype and presentation

Week # 16 – Personal Growth and Student Development

Class Lecture: Wrapping up the Design Project and Final Remarks
Reading Assignment: Chapter 6
Assignments: HW 13 (Optional)

Submit your final prototype and video presentation of the Design Project by Dec 18th