

ENGR 0101 - ENGINEERING SEMINAR

Catalog Description

Formerly known as ENGR 150

Hours: 18 lecture

Description: Exploration of the engineering profession, focusing on branches of engineering and relationships between them, spectrum of work functions, professionalism and ethics. Includes orientation to Sierra College engineering program, evaluation of engineering as a personal career choice and participation in engineering activities. (CSU, UC)

Course Student Learning Outcomes

- CSLO #1: Identify, compare, and contrast the different disciplines within engineering.
- CSLO #2: Solve engineering related problem solving activities.
- CSLO #3: Identify the educational steps required to become an engineer.
- CSLO #4: Analyze the role of engineering professionals working in the local area.

Effective Term

Fall 2022

Course Type

Credit - Degree-applicable

Contact Hours

18

Outside of Class Hours

36

Total Student Learning Hours

54

Course Objectives

Through class discussion, specific classroom exercises and written assignments:

1. identify the different branches of engineering and distinguish between them;
2. identify the wide spectrum of work functions that engineers perform by giving examples of jobs that engineers perform;
3. assess engineering as a suitable personal career choice;
4. create a personal plan to become an engineer;
5. identify behaviors that will support success in becoming an engineer;
6. identify transfer programs related to personal goals;
7. develop a student educational plan for transfer;
8. participate in an engineering problem solving exercise.

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)

- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- CSU Transferable
- UC Transferable

Methods of Evaluation

- Objective Examinations
 - Example: All students will participate in an exam that includes topics presented during lecture and contained within the reading. Sample Exam Questions: The critical path (limiting factor) as to how long an individual will spend at Sierra College in engineering before transferring to a four-year college is the math courses: T / F. According to topics presented in lecture, Mechanical Engineering is best described as: A: Designing and building of roads, property boundary, and bridges B: Optimizing a production factory for maximized output C: Working to make and program electrical products such as computers and cell phones D: Working with energy, heat, fluid flow, and robotics.
- Projects
 - Example: All students will write a 2 page research paper based on information presented during lecture outlining a self-examination of their role within engineering academics and engineering as a career goal. The paper is graded based upon it's coherence in relation to topics presented during the course. A rubric will be used. Writing Assignment Sample: 1. Write about which branch of engineering you are most interested in and one of the colleges/ universities of your choice. Some topics to cover are listed below: 1.1 How and why did you choose engineering (or choose to take this class)? 1.2 How far along are you in your scholastic career? 1.3 Which branch of engineering interests you most? Why? 1.4 Which college/university do you plan to attend? 1.5 How do you plan to choose your college/university? 1.6 What are the justifications for your choices (use research)? 1.6.1 Salary info. 1.6.2 Job opportunity / demand. 1.6.3 Scholastic reputation / ranking. 1.6.4 Personal decisions / other factors. * If you are not comfortable with this topic (you may not want to major in engineering), write about which major most interests you and why. *Include reasons for your decision and outline your educational plan for the next two years.

Repeatable

No

Methods of Instruction

- Lecture/Discussion
- Distance Learning

Lecture:

1. Instructor will explain the differences between engineering disciplines. Students will be divided into small groups to identify questions about engineering disciplines.

Distance Learning

1. Instructor will describe the requirements for an educational plan and a career plan in a video lecture. Students will work in small groups

to develop their own plan using the chat or discussion feature in the LMS.

Typical Out of Class Assignments

Reading Assignments

1. Read the handout material for each engineering discipline area and analyze the benefits and detriments related to your career goals. 2. Research the future trends related to one career area and analyze its employment potential.

Writing, Problem Solving or Performance

1. Research and prepare a report on the basic employment requirements to enter a selected engineering discipline field. 2. Research and prepare a report on the required academic and experience preparation to obtain a position in the engineering profession.

Other (Term projects, research papers, portfolios, etc.)

Required Materials

- Engineering Fundamentals: An Introduction to Engineering
 - Author: Saeed Moaveni
 - Publisher: Cengage Learning
 - Publication Date: 2020
 - Text Edition: 6th
 - Classic Textbook?:
 - OER Link:
 - OER:
- Studying Engineering
 - Author: Raymond Landis
 - Publisher: Discovery Press
 - Publication Date: 2014
 - Text Edition: 4th
 - Classic Textbook?:
 - OER Link:
 - OER:
- Engineering Your Future: A Comprehensive Introduction to Engineering
 - Author: William C. Oakes
 - Publisher: Oxford University Press
 - Publication Date: 2018
 - Text Edition: 9th
 - Classic Textbook?:
 - OER Link:
 - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.