



**El Camino College**  
**COURSE OUTLINE OF RECORD – Approved**

**I. GENERAL COURSE INFORMATION**

**Subject and Number:** Engineering 1  
**Descriptive Title:** Introduction to Engineering  
**Course Disciplines:** Engineering  
**Division:** Mathematical Sciences

**Catalog Description:**

This course is an orientation to the preparation, training, practice, obligations and ethics of the engineering profession, as well as an introduction to the various engineering disciplines. Speakers from various fields present opportunities and challenges in the engineering profession. Academic success strategies related to the study of engineering are emphasized.

**Conditions of Enrollment:**

*You have no defined requisites.*

<b>Course Length:</b>	<b>X Full Term</b>	<b>Other (Specify number of weeks):</b>
<b>Hours Lecture:</b>	<b>2.00 hours per week</b>	<b>TBA</b>
<b>Hours Laboratory:</b>	<b>0 hours per week</b>	<b>TBA</b>
<b>Course Units:</b>	<b>2.00</b>	

**Grading Method:** Letter  
**Credit Status:** Associate Degree Credit

**Transfer CSU:** X Effective Date: 3/20/2000  
**Transfer UC:** X Effective Date: Fall 2001

**General Education:**  
**El Camino College:**

**CSU GE:**

**IGETC:**

## II. OUTCOMES AND OBJECTIVES

### A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

#### SLO #1 Analyze Engineering Profession

Analyze the preparation, training, practice, obligations, and ethics required in the engineering profession.

#### SLO #2 Apply Academic Success Strategies

Assess the cognitive skills and apply academic success strategies related to the study of engineering.

### B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below.)

1. Describe and differentiate between the various engineering disciplines.
2. Assess the cognitive skills required in the various engineering disciplines.
3. Analyze the preparation, training, practice, obligations, and ethics required in the engineering profession.
4. Apply academic success strategies related to the study of engineering.
5. Determine the different curricula required at the university level for the study of the various engineering disciplines.

## III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	4	I	KEYS TO SUCCESS IN ENGINEERING STUDY A. Determination B. Effort C. Approach D. Models of viewing education E. Goal setting F. Structure your life
Lecture	5	II	THE ENGINEERING PROFESSION A. Engineering design process B. Case study: Helicopter C. Engineering disciplines D. Engineering job functions E. Employment opportunities F. Engineering fields of the future G. Engineering as a profession
Lecture	4	III	UNDERSTANDING THE TEACHING/LEARNING PROCESS A. Types of learning B. Manner of learning C. Mistakes students make D. Academic success skills survey

Lecture	5	IV	MAKING THE MOST OF HOW YOU ARE TAUGHT A. Course preparation B. Preparing for lectures C. Making effective use of professors D. Tutors and other academic resources
Lecture	4	V	MAKING THE LEARNING PROCESS WORK FOR YOU A. Skills for learning B. Organizing the learning process C. Preparing for tests D. Collaborative learning
Lecture	5	VI	PERSONAL GROWTH AND STUDENT DEVELOPMENT A. Personal development B. Behavior modification C. Assessment of strengths D. Developing communication skills E. Leadership and teamwork F. Motivation
Lecture	4	VII	BROADENING YOUR EDUCATION A. Student organizations B. Engineering projects C. Pre-professional employment D. Study abroad
Lecture	5	VIII	ORIENTATION TO ENGINEERING EDUCATION A. Organization of engineering education B. Role of community colleges in engineering education C. Academic advising D. Academic regulations E. Student conduct F. Graduate study in engineering
Total Lecture Hours		36	
Total Laboratory Hours		0	
Total Hours		36	

#### IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

##### A. PRIMARY METHOD OF EVALUATION:

Substantial writing assignments

##### B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:

Develop a list of at least five attributes that would be desirable for each of the following engineering job functions:

1. Analysis
2. Design
3. Test
4. Development
5. Sales
6. Research
7. Management

- 8. Consulting
- 9. Teaching

**C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:**

1. The following are the seven primary specialties within the civil engineering discipline: structural, transportation, environmental, water resources, geotechnical, surveying, and construction. Select the one specialty from those listed above, which, if chosen as a profession, you believe would provide the greatest opportunity to benefit society. Write a two-page paper in support of the specialty of your choice.
2. Develop an educational plan for obtaining a bachelor of science degree in the engineering discipline of your choice. Include a semester-by-semester schedule of courses to be taken in appropriate order (based on prerequisites). If the plan cannot be completed in four years, explain why.

**D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:**

- Essay exams
- Reading reports
- Written homework
- Homework Problems
- Multiple Choice

**V. INSTRUCTIONAL METHODS**

- Discussion
- Guest Speakers
- Lecture

**Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.**

**VI. WORK OUTSIDE OF CLASS**

- Study
- Required reading
- Written work
- Journal

**Estimated Independent Study Hours per Week: 4**

**VII. TEXTS AND MATERIALS**

**A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS**

Raymond B. Landis. Studying Engineering. 5th ed. Discovery Press, 2019.

**B. ALTERNATIVE TEXTBOOKS**

**C. REQUIRED SUPPLEMENTARY READINGS**

**D. OTHER REQUIRED MATERIALS**

**VIII. CONDITIONS OF ENROLLMENT**

**A. Requisites (Course and Non-Course Prerequisites and Corequisites)**

Requisites	Category and Justification
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**B. Requisite Skills**

Requisite Skills
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**C. Recommended Preparations (Course and Non-Course)**

Recommended Preparation	Category and Justification
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**D. Recommended Skills**

Recommended Skills
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**E. Enrollment Limitations**

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by Milan Georgevich on 01/01/2000.

BOARD APPROVAL DATE: 03/20/2000

LAST BOARD APPROVAL DATE: 09/08/2015

Last Reviewed and/or Revised by: Pavan Nagpal

Date: 10/20/2020

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