

# ENGINEERING

## Program Description

Engineers apply the theories and principles of science and mathematics to practical technical problems. The engineering major provides a solid foundation in what is normally referred to as the "engineering core" at most colleges and universities. Mathematics, physics, chemistry, and introductory engineering courses such as circuit analysis and statics make up the bulk of this core. The major is intended to provide, in most cases, all of the basic subjects necessary for a smooth transfer to the candidate's chosen college or university.

Learn more about the program on the [Engineering website](#).

## Program Learning Outcomes

- Students will be able to formulate logical problem-solving approaches, generate solutions, and assess the reasonableness of the solutions for engineering-type analysis problems.
- Students will be able to design, construct, and produce creative solutions to engineering problems by applying the engineering design process and identifying pertinent design parameters based on the fundamental physics governing a system.
- Students will be able to demonstrate understanding of the fundamental knowledge necessary for the practice of, or for advanced study in, engineering, including scientific principles, rigorous analysis, and problem solving.
- Students will be able to demonstrate clear communication skills, responsible teamwork, professional attitudes, and ethics.
- Students will be able to demonstrate a preparation for the complex work environment and continuous learning.

## Career Opportunities

Engineering continues to be an excellent choice for a career. Engineering consistently has low rates of unemployment. Salaries at the entry level begin at about \$50,000 with an Associate in Science degree and may go as high as \$170,000 for a Bachelor of Science degree in particular specializations.

## Award Type(s)

- AS = Associate in Science Degree

## Units Required

- Major: 73

## Additional Information

### Suggested Preparation Courses:

Code	Title	Units
MATH 48C	PRECALCULUS III (or equivalent)	5
CHEM 25	FUNDAMENTALS OF CHEMISTRY (or equivalent)	5
PHYS 2A	GENERAL PHYSICS	5
or PHYS 6	INTRODUCTORY PHYSICS	
or equivalent		

**Note:** Students should check with the transfer institution for any additional required courses.

## Associate Degree Requirements

A minimum of 90 units is required<sup>1</sup> to complete the associate degree, including:

- Core and support courses for the major (73 units total)
- Completion of one of the following general education patterns:
  - Foothill College General Education
  - **Summer Session 2025 only**—CSU General Education Breadth (CSU GE Breadth)<sup>2</sup>
  - **Summer Session 2025 only**—Intersegmental General Education Transfer Curriculum (IGETC)<sup>2</sup>
  - **Beginning Fall Quarter 2025**—California General Education Transfer Curriculum (Cal-GETC)<sup>3</sup>

<sup>1</sup> Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

<sup>2</sup> Summer Session 2025 is the final term during which CSU GE Breadth and IGETC may be used. Please see a counselor for more information.

<sup>3</sup> Cal-GETC begins in Fall Quarter 2025. Please see a counselor for more information.

**Note:** A grade of "C" (or "P") or better is required for all core and support courses used for the degree. In addition, the student must obtain a minimum GPA of 2.0.

Refer to the Associate in Arts & Associate in Science Degree Requirements page for complete information about graduation requirements and catalog rights.

## Core and Support Courses

Code	Title	Units
<b>Core Courses</b>		
CHEM 1A	GENERAL CHEMISTRY	5
CHEM 1B	GENERAL CHEMISTRY	5
ENGR 10	INTRODUCTION TO ENGINEERING	5
MATH 1A	CALCULUS	5
or MATH 1AH	HONORS CALCULUS I	
MATH 1B	CALCULUS	5
or MATH 1BH	HONORS CALCULUS II	
MATH 1C	CALCULUS	5
MATH 1D	CALCULUS	5
MATH 2A	DIFFERENTIAL EQUATIONS	5
PHYS 4A	GENERAL PHYSICS (CALCULUS)	6
PHYS 4B	GENERAL PHYSICS (CALCULUS)	6
PHYS 4C	GENERAL PHYSICS (CALCULUS)	6

### Support Courses

Select 15 units from the following:		15
C S 1A	OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN JAVA	
C S 2A	OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN C++	
C S 3A	OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN PYTHON	
C S 10	COMPUTER ARCHITECTURE & ORGANIZATION	
ENGR 6	ENGINEERING GRAPHICS	

ENGR 11	PROGRAMMING & PROBLEM-SOLVING IN MATLAB
ENGR 28 or BIOL 28	INTRODUCTION TO BIOENGINEERING INTRODUCTION TO BIOENGINEERING
ENGR 35	STATICS
ENGR 37	INTRODUCTION TO CIRCUIT ANALYSIS
ENGR 45	PROPERTIES OF MATERIALS
ENGR 47	DYNAMICS
ENGR 61A	INTRODUCTION TO SEMICONDUCTOR TECHNOLOGY
ENGR 61B	VACUUM SYSTEMS
MATH 2B	LINEAR ALGEBRA
PHYS 4D	GENERAL PHYSICS (CALCULUS)
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<b>Total Units</b>	
<b>73</b>	