SEMICONDUCTOR PROCESS ENGINEERING

The name of this catalog page has been changed from Semiconductor Engineering, effective October 30, 2025.

Program Description

The Associate in Science Degree in Semiconductor Process Engineering is for any student looking to gain foundational knowledge about how computer chips are made. The program is relevant for either students looking to enter the workforce directly or students looking to transfer into a bachelor's degree engineering program, or even students looking to explore and learn more about the world of how computers work.

Learn more about the program on the Apprenticeship website and the Engineering website.

Program Learning Outcomes

- Students will be prepared for career advancement in semiconductor processing.
- Students will be able to apply concepts in math, science, and engineering to workplace applications in the semiconductor processing industry.

Career Opportunities

Job opportunities in the semiconductor processing field start at $25-$30 per hour, based on experience and education, and increase as additional coursework is completed and with additional work experience. Opportunities to join the apprenticeship program occur periodically.

Award Type(s)

- AS = Associate in Science Degree
- CA = Certificate of Achievement

Units Required

- Major: 75
- Certificate(s): 15

Associate Degree Requirements

A minimum of 90 units is required[1] to complete the associate degree, including:

- Core courses for the major (75 units total)
- Completion of one of the following general education patterns:
  - Foothill College General Education
  - California General Education Transfer Curriculum (Cal-GETC)

[1] Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

Note: A grade of "C" (or "P") or better is required for all core courses used for the degree or certificates. 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
Core Courses		
CHEM 1A	GENERAL CHEMISTRY	5
CHEM 1B	GENERAL CHEMISTRY	5
ENGR 10	INTRODUCTION TO ENGINEERING	5
ENGR 37	INTRODUCTION TO CIRCUIT ANALYSIS	5
ENGR 37L	CIRCUIT ANALYSIS LABORATORY	2
ENGR 45	PROPERTIES OF MATERIALS	5
ENGR 61A	INTRODUCTION TO SEMICONDUCTOR TECHNOLOGY	5
ENGR 61B	VACUUM SYSTEMS	5
MATH 1A	CALCULUS	5
MATH 1B	CALCULUS	5
MATH 1C	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
Total Units		**75**

Certificate Requirements

Certificate of Achievement in Semiconductor Processing

The Certificate of Achievement in Semiconductor Processing provides foundational knowledge and skills necessary for safely and efficiently moving wafers through the semiconductor processing stages in a cleanroom work environment. This certificate is open to all students with an interest in learning more about semiconductor processing. Students in the apprenticeship pathway will complete the Certificate of Achievement as a part of the apprenticeship program.

- Units: 15

Code	Title	Units
ENGR 61A	INTRODUCTION TO SEMICONDUCTOR TECHNOLOGY	5
ENGR 101A	ADVANCED MANUFACTURING	5
MATH 40A	QUANTITATIVE REASONING	5
Total Units		**15**

Certificate of Achievement in Vacuum Technology

The Certificate of Achievement in Vacuum Technology is for any student looking to gain foundational knowledge about how vacuum works and how it is used in industry. The certificate is relevant for students looking to enter the workforce, looking to learn new skills while working, or looking to prepare for the Associate in Science Degree in Semiconductor Process Engineering. The courses provide an understanding of vacuum principles and troubleshooting.

- Units: 15

Code	Title	Units
CHEM 25	FUNDAMENTALS OF CHEMISTRY	5
ENGR 10	INTRODUCTION TO ENGINEERING	5
ENGR 61B	VACUUM SYSTEMS	5
Total Units		**15**