

### Major Course Requirements

A minimum of 78 hours

► **Required Core Courses (59 hours):**

ENGR 105	Introduction to Engineering	3
ENGR 131	Engineering Drawing	3
ENGR 211+12+13	Engineering Mechanics I,II,III	3+3+3
ENGR 216	Circuit Analysis	4
INFS 115	Intro to Computer Programming	4
MATH 131+132	Calculus I,II	4+4
MATH 265	Elementary Linear Algebra	4
MATH 267	Multivariable Calculus	5
MATH 269	Elementary Differential Equations	4
PHYS 111+12+13	General Physics I,II,III	4+4+4
PHYS 265	Calculus Application for Physics	3

► **Required Cognate Courses (19 hours):**

CHEM 111+12+13	General Chemistry I,II,III	5+5+5
COMM 105	Communication and Public Speaking	4

**Recommended Cognate Course:**

ENGL 102	College English II (4)
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### Student Learning Outcomes

**Students can:**

- Apply knowledge of mathematics, sciences, and other related disciplines as a means to identify, formulate, and solve applied science problems.
- Complete projects, conduct experiments, and analyze/interpret data individually as well as in groups.
- Communicate design and scientific information effectively.
- Recognize the need for and ability to engage in life-long learning.
- Express an understanding of professional and ethical responsibility.

### Occupational Information

**What can I do with this major?**

Students completing this program have entry-level qualifications for the field of engineering and should have an adequate foundation for baccalaureate-level studies. The Engineering fields available are civil engineering, computer engineering, electrical engineering and mechanical engineering.

**Additional Education Required?**

While additional studies are not required to enter the profession, advancement in the chosen field is enhanced with a B.S. in Engineering.

**Public Sector vs. Denominational**

Most positions are in the public sector.

**Job Outlook**

Earnings for engineers vary significantly by specialty, industry, and education. Even so, as a group, engineers earn some of the highest average starting salaries among those holding bachelor's degrees. As of May 2022, the median annual wage for civil, mechanical, computer, and electrical engineers were \$89,940; \$96,310; \$132,360; and \$104,610, respectively. (Note: data and figures taken from the U.S. Department of Labor Occupational Outlook Handbook: [www.bls.gov/ooh/architecture-and-engineering](http://www.bls.gov/ooh/architecture-and-engineering))

Those desiring to enter the workplace immediately rather than continue with the bachelor's degree are suited to work as drafters and engineering technicians, which have a positive growth in the industries. Average starting salaries for these types of positions are in the low \$60,000's.

### General Education Requirements

To view general education requirements for this major, please refer to page A-07, Summary of General Education Requirements: A.S. Degree.

### How to Construct Your Own Program

1. Counsel with your advisor.
2. Consider your aptitudes, interests, and available courses.
3. Schedule major courses and cognates first.
4. Fill the rest of your schedule with G.E. requirements.
5. For the freshman year include English, Religion, and PE courses. Also include Basic Algebra I+II unless waived by previous work.

### What the Degree Includes

A total of 90 quarter hours including:

1. General Education requirements.
2. Major requirements.
3. Minimum 2.0 GPA, overall and major.

### For More Information

Mathematics and Physics Department  
 Pacific Union College  
 One Angwin Avenue  
 Angwin, CA 94508  
 (707) 965-7269

American Society of Civil Engineers: [www.asce.org](http://www.asce.org)

Institute of Electrical and Electronic Engineers: [www.ieee.org](http://www.ieee.org)

The American Society of Mechanical Engineers:  
[www.asme.org](http://www.asme.org)

### Sample Two-Year Program

The following plan illustrates a two-year program for a very well-prepared student.

The engineering advisor can help each student develop an individualized program. Some students may find a decelerated program to be more manageable, even though it may take more than two years for completion.

<b>First Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
General Chemistry I,II,III	5	5	5
Calculus I,II	-	4	4
Computer Programming	-	-	4
Intro to Engineering	3	-	-
Engineering Drawing	-	3	-
General Education/Electives	8	4	3
	16	16	16
<b>Second Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
Circuit Analysis	-	-	4
Engineering Mechanics	3	3	3
General Physics I,II,III	4	4	4
Calculus Application for Physics	-	-	3
Multivariable Calculus	-	-	5
Logic and Sets	-	5	-
Elementary Differential Equations	4	-	-
Elementary Linear Algebra	-	4	-
Communication and Public Speaking	-	4	-
General Education/Electives	5	1	-
Assessment Seminar	-	-	0.1
	16	16	19.1

\* Courses marked (even) or (odd) are taught in alternate years only.  
 2024-2025 is odd, 2025-2026 is even.