Pacific Union College

Major in Engineering, A.S.

MATH-04

2023-2024

Major Course Requirements

A minimum of 76 hours

➤ ***Required Core Courses (58 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 269	Elementary Differential Equations	4
MATH 310	Foundational Math. for Modeling	4
PHYS 111+12+13	General Physics I,II,III	4+4+4
PHYS 265	Calculus Application for Physics	3

➤ ***Required Cognate Courses (18-19 hours):***

CHEM 111+12+13	General Chemistry I,II,III	5+5+5
At least one of the following courses:		3-4
COMM 105	Intro to Communication (4)	
COMM 226	Public Speaking (3)	

Recommended Cognate Course:

ENGL 102	College English II (4)

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 2014, the median annual wage for civil, mechanical, computer, and electrical engineers were $82,050; $83,060; $108,430; and $93,260, respectively. (Note: data and figures taken from the U.S. Department of Labor Occupational Outlook Handbook: 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 high $40,000's.

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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
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Angwin, CA 94508
(707) 965-7269

E-mail: engineering@puc.edu
Website: www.puc.edu/physics

American Society of Civil Engineers: www.asce.org

Institute of Electrical and Electronic Engineers: www.ieee.org

The American Society of Mechanical Engineers: 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.

First Year	F	W	S
General Chemistry I,II,III	5	5	5
Calculus I,II	4	4	-
Elementary Linear Algebra	-	-	4
Computer Programming	4	-	-
Intro to Engineering	3	-	-
Engineering Drawing	-	3	-
General Education/Electives	-	4	7
	16	16	16

Second Year	F	W	S
Circuit Analysis	-	-	4
Engineering Mechanics	3	3	3
General Physics I,II,III	4	4	4
Calculus Application for Physics	-	-	3
Foundational Math. for Modeling	-	4	-
Elementary Differential Equations	4	-	-
Communication Course	-	4	-
General Education/Electives	1	1	3
Assessment Seminar	-	-	0.1
	16	16	17.1