The Bachelor of Science degree in Computer Engineering is offered by the University of the Pacific through the Department of Electrical and Computer Engineering (ECPE). Computer engineers solve problems in hardware, software, systems, and networks that address almost every industry including: telecommunications, energy, health care, banking, networking, electronics, manufacturing, etc.

All Computer Engineering students complete a team-oriented, multidisciplinary senior design project, which provides an opportunity to apply engineering fundamentals and design methods to the solution of a real problem. Graduates of this program have the knowledge essential for entry into this dynamic field of engineering or to continue their education through graduate studies. The Computer Engineering laboratories include state-of-the-art software and hardware platforms, as well as standard test and measurement equipment. Students have easy access to computer and laboratory equipment, and can conduct approved independent research.

**COOPERATIVE EDUCATION PROGRAM**
Co-op coordinators work with students to arrange 7 months full-time, paid jobs with engineering employers. (Co-op is optional for non-U.S. citizens)

**COMPUTER ENGINEERING PROGRAM OBJECTIVES**
Through their careers in Computer Engineering or related professions, Pacific graduates are expected to demonstrate the following within a few years of earning their Bachelor’s degree in Computer Engineering:

+ Competency in the Computer Engineering profession via promotion to positions of increasing responsibility, publications, and/or conference presentations

+ Adaptability to new developments in science and technology by successfully completing or pursuing graduate education in engineering or related fields, or participating in professional development and/or industrial training courses

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# Bachelor of Science in Computer Engineering - Program Curriculum

## Mathematics & Basic Science
- **Math 051 [4]** Calculus I
- **Math 053 [4]** Calculus II
- **Math 055 [4]** Calculus III
- **Math 057 [4]** Differential Equations
- **Phys 053 [5]** Physics I
- **Phys 055 [5]** Physics II

## General Education
- **Pacs 001 [4]** Pacific Seminar 1
- **Pacs 002 [4]** Pacific Seminar 2
- **Pacs 003 [3]** Pacific Seminar 3
- **Gen. Ed. [3-4]** (I-A, I-B, or I-C)*
- **Gen. Ed. [3-4]** (II-A or II-C)
- **Engr 030 [3]** Engr., Ethics & Society (II-B)
- **Category I Gen. Eds** must be from different areas.

## Professional Practice (Co-op)
- **Engr 181 [16]**
- **Engr 182 [16]**

## Electives (See List Below)
- Two **Ecpe Electives [3-4]**
- One **Comp Elective [3-4]**
- One **Comp or Ecpe Elective [3-4]**
- One **Soecs Elective [3-4]**

## Maximum Totals: 120 Academic Units: 32 Co-op Units

### Computer Engineering Electives:
- **Science Electives**
  - **Chem 024 [4]** Fundamentals of Chemistry
  - **Chem 025 [5]** General Chemistry
  - **Chem 027 [5]** General Chemistry
  - **Beng 053 [3]** Bio With Apps for Engrs I
  - **Beng 063 [4]** Bio With Apps for Engrs II
  - **Biol 051 [4]** Principles of Biology
  - **Biol 061 [4]** Principles of Biology

- **Comp Electives**
  - **Comp 127 [4]** Client-Server Systems
  - **Comp 129 [4]** Software Engineering
  - **Comp 135 [3]** Human-Computer Interface
  - **Comp 137 [3]** Parallel Computing
  - **Comp 141 [4]** Programming Languages
  - **Comp 147 [4]** Computing Theory
  - **Comp 151 [3]** Artificial Intelligence
  - **Comp 153 [3]** Computer Graphics
  - **Comp 155 [4]** Computer Simulation
  - **Comp 157 [4]** Design/Analysis of Algorithms
  - **Comp 159 [4]** Computer Game Technologies
  - **Comp 163 [4]** Database Management Sys.
  - **Comp 173 [4]** Operating Systems
  - **Comp 175 [3]** System Admin. And Security
  - **Comp 191 [3-4]** Independent Study
  - **Comp 197 [3-4]** Undergraduate Research
  - **Comp 2xx Any Graduate Ecpe Course**

- **Discrete Math Electives**
  - **Comp 047 [4]** Discrete Math For Comp. Science
  - **Math 049 [4]** Introduction to Abstract Math
  - **Math 074 [4]** Discrete & Combinatorial Math
  - **Math 110 [4]** Numerical Analysis
  - **Math 148 [4]** Cryptography
  - **Math 174 [4]** Graph Theory

- **Ecpe Electives**
  - **Ecpe 133 [4]** Solid State Devices
  - **Ecpe 135 [4]** Power Electronics
  - **Ecpe 136 [4]** VLSI Design
  - **Ecpe 141 [4]** Advanced Circuits
  - **Ecpe 155 [4]** Autonomous Robotics
  - **Ecpe 161 [4]** Control Systems
  - **Ecpe 162 [4]** Communication Systems
  - **Ecpe 163 [4]** Energy Conversion
  - **Ecpe 165 [3]** Power Systems
  - **Ecpe 177 [4]** Computer Networking
  - **Ecpe 178 [3]** Computer Network Security
  - **Ecpe 191 [3-4]** Independent Study
  - **Ecpe 193 [3-4]** Special Topics
  - **Ecpe 197 [3-4]** Undergraduate Research
  - **Ecpe 2xx Any Graduate Ecpe Course**

- **Soecs Elective**
  - Any Beng, Civl, Comp, Engr, Emgt, or Mech Course (Ecpe or Comp must be 100 level, excludes engr 25, 30, 181, 182)

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32 Units of Co-op Are Required to Graduate. Co-op is Optional for Non-U.S. Citizens.

*Ecpe 191: Independent Study, And Ecpe 197: Undergraduate Research Can Be Taken For 1-4 Units; A Minimum of 3 or Maximum of 4 Units Can Count As An Ecpe Elective. Ecpe 193: Special Topics May Qualify As An Ecpe Elective. Graduates (200 Level) Courses May Also Count As Ecpe Electives. A 3.0 GPA Is Required To Take A 200 Level Course As An Elective.