The Bachelor of Science degree in Electrical Engineering is offered by the University of the Pacific through the Department of Electrical and Computer Engineering (ECPE). Electrical engineering encompasses a wide range of topics, including communication systems, automatic control systems, digital and embedded systems, electronics, energy conversion, digital signal processing, and integrated circuits. All Electrical Engineering students complete a team-oriented, multidisciplinary senior design project, which provides an opportunity to apply engineering fundamentals and design methods to solve a real-world problem. Graduates of this program have the essential knowledge to continue their education through graduate studies, or enter the workforce directly after graduation.

The Electrical Engineering laboratories at Pacific provide hands-on experience with circuits, test equipment, microcontrollers, robots, control systems, energy conversion, power electronics, and the latest software. Students have easy access to all computer and laboratory equipment, and can conduct approved independent research.

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

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

+ Competency in the Electrical 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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engineering.pacific.edu
# Bachelor of Science in Electrical Engineering - Program Curriculum

## Mathematics & Basic Science
<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 051</td>
<td>4</td>
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<td>MATH 053</td>
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<td>MATH 055</td>
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<tr>
<td>MATH 057</td>
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</table>

## Physics
<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>PHYS 053</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 055</td>
<td>5</td>
</tr>
</tbody>
</table>

## Science Elective (3-5) (see list below)

## General Education

### General Education (3-4) (I-A, I-B, or I-C)*

### General Education (3-4) (II-A or II-C)

### Engr 030 (3) Engr., Ethics & Society (II-B)

* Category I gen. eds must be from different areas.

## Electrical Engineering Core:

### ECPE 005 [1] Intro to Electrical & Computer Engr.

### ECPE 041 [3] Circuits

### ECPE 041L [1] Circuits Lab

### ECPE 071 [3] Digital Design

### ECPE 071L [1] Digital Design Lab

### ECPE 121 [4] Digital Signal Processing

### ECPE 127 [3] Random Signals

### ECPE 131 [3] Electronics

### ECPE 131L [1] Electronics Lab

### ECPE 141 [4] Advanced Circuits

### ECPE 172 [4] Microcontrollers

### ECPE 194 [0] Core Assessment Exam

### ECPE 195 [2] Senior Project 1

### ECPE 196 [2] Senior Project 2

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

### Electrical Engineering Electives (Select Four)

#### At Least One Course

### ECPE 135 [4] Power Electronics

### ECPE 163 [4] Energy Conversion

### ECPE 165 [3] Power Systems

#### At Least One Course

### ECPE 135 [4] Power Electronics

### ECPE 136 [4] VLSI Design


### ECPE 161 [4] Control Systems

### ECPE 162 [4] Communication Systems

### Two Additional Electives

#### Any of the Above ECPE Courses

### ECPE 170 [4] Computer Systems and Networks


### ECPE 177 [4] Computer Networking

### ECPE 178 [3] Computer Network Security

### ECPE 191 [3-4]* Independent Study

### ECPE 197 [3-4]* Undergraduate Research


### BENG 171 [4] Bioelectricity

### ECPE 2XX [3-4] Any Graduate ECPE Course

### Engineering Science Electives (Select One)

### Civl 015 [3] Civil Engineering Graphics


### Engr 122 [4] Thermodynamics

### Science Electives (Select One)

### BENG 053 [4] 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


### Chem 025 [5] General Chemistry

### Chem 027 [5] General Chemistry

### Advanced Math Electives (Select One)

### Math 110 [4] Numerical Analysis


### Math 148 [3] Cryptography

### Math 152 [4] Vector Analysis

### Math 155 [4] Real Analysis


### Math 164 [4] Graph Theory

### Upper Division Soecs Elective (Select One)

### Any 100 or 200 BENG, CIVL, COMP, ECPE, Engr, EMTG or Mech Course

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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 EE elective. ECPE 193: Special topics may qualify as an ECPE elective. Graduate (200 level) courses may also count as ECPE electives. A 3.0 GPA is required to take a 200 level course as an elective.

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