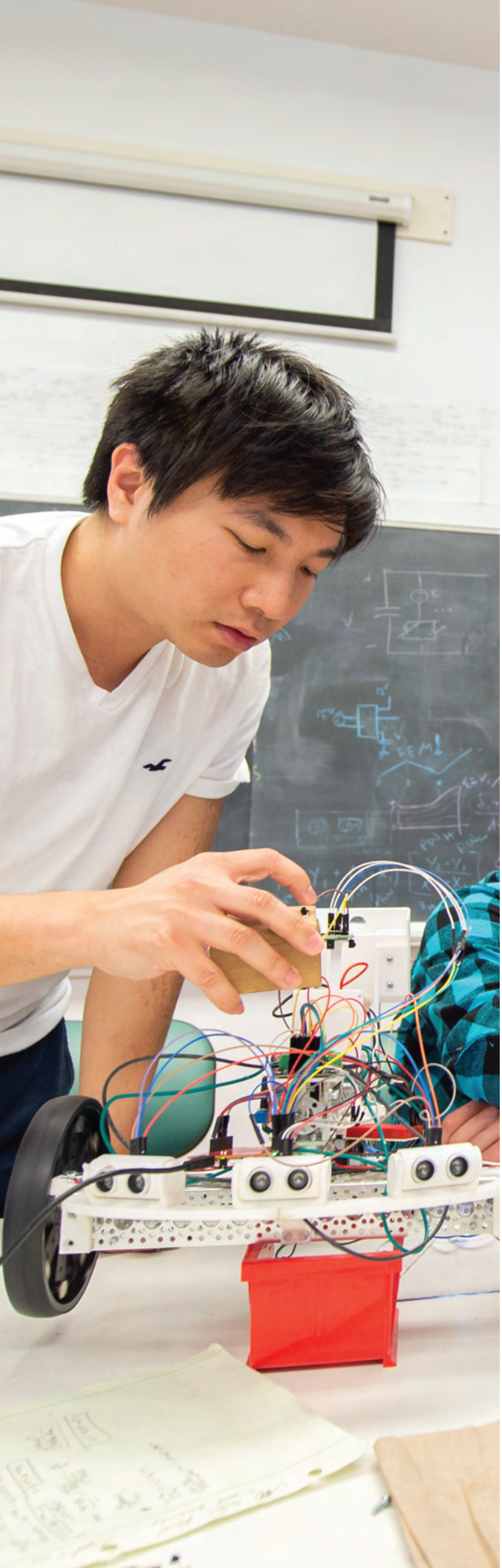

UNIVERSITY OF THE PACIFIC

Electrical Engineering

The Bachelor of Science degree in Electrical Engineering is offered by 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)

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, participating in professional development and/or industrial training courses, or pursuing professional licensure

For more information, contact:
Dr. Elizabeth Basha, Professor and Chair
ebasha@pacific.edu | 209.946.2264 | Anderson 230

UNIVERSITY OF THE PACIFIC | School of Engineering and Computer Science

BACHELOR OF SCIENCE IN ELECTRICAL 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
ADVANCED MATH ELEC. [4] (SEE LIST BELOW)

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 195 [2] SENIOR PROJECT I
ECPE 196 [2] SENIOR PROJECT II

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 SYSTEM ANALYSIS

AT LEAST ONE COURSE
ECPE 124 [4] DIGITAL IMAGE PROCESSING
ECPE 135 [4] POWER ELECTRONICS
ECPE 136 [4] VLSI DESIGN
ECPE 155 [4] AUTONOMOUS ROBOTICS
ECPE 161 [4] AUTOMATIC CONTROL SYSTEMS
ECPE 162 [4] COMMUNICATION SYSTEMS

TWO ADDITIONAL ELECTIVES
ANY OF THE ABOVE ECPE COURSES
ECPE 133 [4] SOLID STATE DEVICES
ECPE 170 [4] COMPUTER SYSTEMS AND NETWORKS
ECPE 173 [3] COMPUTER ORGANIZATION & ARCHITECTURE
ECPE 174 [4] ADVANCED DIGITAL DESIGN
ECPE 177 [4] COMPUTER NETWORKING
ECPE 178 [3] COMPUTER NETWORK SECURITY
ECPE 191 [3-4]* INDEPENDENT STUDY
ECPE 197 [3-4]* UNDERGRADUATE RESEARCH
MECH 155 [3] SOLAR ENERGY ENGINEERING
MECH 175 [4] SYSTEMS ANALYSIS AND CONTROL
BENG 171 [4] BIOELECTRICITY
ECPE 2XX [3-4] ANY GRADUATE ECPE COURSE

GENERAL EDUCATION
CORE 1 [3] PROBLEM SOLVING AND COMMUNICATIONS
CORE 2 [4] WRITING AND CRITICAL THINKING
ARTISTIC PROCESS & CREATION
CIVIC & GLOBAL RESPONSIBILITY
LANGUAGE & NARRATIVES
SOCIAL INQUIRY
ENGR 030 [3] ENGR., ETHICS & SOCIETY

ENGR 010 [1] DEAN'S SEMINAR
ENGR 025 [1] PROFESSIONAL PRACTICE SEMINAR
COMP 051 [4] INTRO TO COMPUTER SCIENCE
COMP 053 [4] DATA STRUCTURES
PHYS 101 [4] ELECTRICITY AND MAGNETISM
OR ECPE 144 [4] APPLIED ELECTROMAGNETISM

PROFESSIONAL PRACTICE (CO-OP)
ENGR 181 [16]
ENGR 182 [16]

ELECTIVES (5 ELECTIVES FROM LISTS BELOW)
- FOUR EE ELECTIVES [3-4]
- ONE UPPER DIVISION SOECS ELECTIVE [3-4]

ADVANCED MATH ELECTIVES (SELECT ONE)
MATH 075 [4] INTRO TO LINEAR ALGEBRA
MATH 110 [4] NUMERICAL ANALYSIS
MATH 145 [4] APPLIED LINEAR ALGEBRA
MATH 148 [3] CRYPTOGRAPHY
MATH 152 [4] VECTOR ANALYSIS
MATH 155 [4] REAL ANALYSIS I
MATH 157 [4] APPLIED DIFF. EQUATIONS II
MATH 174 [4] GRAPH THEORY

SOECS ELECTIVE (SELECT ONE)
ANY BENG, CIVL, COMP, ECPE, ENGR, EMGT, OR MECH COURSE (ECPE OR COMP MUST BE 100 LEVEL. EXCLUDES ENGR 10, 19, 25, 30, 150, 181, 182, 183, AND COMP 187).

DEGREE COMPLETION

The electrical engineering plan of study typically requires a minimum of eight (8) semesters of academic coursework, plus two (2) semesters of co-op. Students not prepared to enter directly into the major will need to take prepatory courses, which may extend the time to degree completion. The following courses are considered prepatory for electrical engineering majors:

- Mathematics (MATH): Courses in the pre-requisite sequence leading to MATH 51
- Physics (PHYS): Courses in the pre-requisite sequence leading to PHYS 53
- Chemistry (CHEM): Courses in the pre-requisite sequence leading to CHEM 24
- Writing (WRIT) courses

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.**