

ELECTRICAL ENGINEERING

www.ece.pdx.edu

For additional information
about the Department of
Electrical and Computer
Engineering

Visit the department in:
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503-725-3806
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Or contact:
Department of Electrical and
Computer Engineering
Portland State University
P.O. Box 751
Portland, OR 97207-0751



Undergraduate Degrees Offered:

Bachelor of Science in Electrical Engineering

Graduate Degrees Offered:

Master of Science in Electrical and Computer Engineering

Doctor of Philosophy in Electrical and Computer Engineering

Master of Engineering in Electrical and Computer Engineering

PSU engineering graduates are in demand. Employers know that they have the education and experience necessary to hit the ground running upon graduation.

The Electrical Engineering Program is designed to provide a comprehensive background in electrical engineering and offers specialization in the areas of

digital electronics
VLSI circuit design
embedded systems
automatic control
computer architecture
communication systems
test and validation
design automation
intelligent robotics
microprocessor system design
power systems.

This program provides the student with the educational background necessary for employment in virtually all branches of the electronics, power, and computer industries.

Major Requirements

The electrical engineering curriculum is accredited by the Accreditation Board for Engineering Technology (ABET). PSU's Electrical Engineering Program consists of a required core of courses in the fundamentals of the electrical sciences. Senior electives provide depth in areas of particular interest to the student.

In the senior year, all electrical engineering majors complete a capstone project, applying their knowledge to serve the community. In addition to meeting requirements for the Department of Electrical and Computer Engineering, students must also meet general University requirements.

Faculty

Prof. George G. Lendaris specializes in neural networks and fuzzy logic.

Profs. Malgorzata Chrzanowska-Jeske, Marek A. Perkowski, and Xiaoyu Song specialize in VLSI and design automation.

Profs. , Douglas V. Hall, Allen Taylor and Mark Faust specialize in computer architecture.

Profs. Y.C. Jenq and Fu Li specialize in digital signal processing.

Prof. Garrison Greenwood specializes in embedded systems.

Prof. James McNames specializes in biomedical engineering and signal processing.

Profs. Lisa Zurk, Melind Holtzman and Richard Campbell specialize in electromagnetics.

Profs. Branimir Pejcinovic and Betsy Natter specialize in microelectronics

Profs. W. Robert Daasch and Paul Van Halen specialize in circuit design.

Prof. Shalini Prasad specializes in bio-nanotechnology.

Internships

The Portland Metropolitan area is one of the fastest growing high technology centers in the United States. Because of our location, PSU electrical engineering students are in high demand. A significant number of electrical engineering students hold jobs in the field while attending PSU. Internships and part-time work are commonly available through the contacts made by our faculty and students. You may contact the department or the PSU Career Center for additional information and up-to-date job listings. PSU also participates in the industry-sponsored MECOP program. Opportunities also exist for (partially subsidized) international internships in China and Germany.

Facilities

Students admitted to the Electrical Engineering Degree Program have access to several high-tech laboratories including: Intel microcomputer engineering lab, VLSI Design Lab, Digital Signal Processing lab, Intelligent Robotics lab, Video and Image processing lab, Tektronix Circuits lab, Northwest Electromagnetic and Acoustic Research (NEAR) Lab

Biomedical Microdevices and Nanotechnology Lab
Evolvable Systems Lab
Nanoelectronics and Electronic Packaging Lab
Analog Circuit Design and Test

Integrated Circuit Design and Test lab, and Vertically-Aware VLSI CAD lab.

Our labs are equipped with state-of-the-art instrumentation and computers, much of which has been donated by local industry. Computer facilities include UNIX workstations and high-performance PCs.

Graduates

Engineers in all fields are in high demand in the Portland metropolitan area. PSU graduates in electrical engineering usually go directly to work in their chosen field in local industry or consulting firms. Many graduates also continue in the department to work on their M.S. or Ph.D. degrees.

Career Possibilities

A wide range of career possibilities exist in electrical engineering. Graduates work in both large and small firms in the Northwest and across the nation. They are involved in the design, analysis, and implementation of computer hardware and software within their area of specialization.

Scholarships

There are many scholarships available to electrical engineering students. The following is just a sample listing:

Rolf and Blanka Schaumann Scholarship; covers resident tuition and fees.
Tektronix Computer Science/Electrical and Computer Engineering Scholarships; covers resident tuition and fees.
H.C.M. Erzurumlu Scholarship; covers one year resident tuition and fees.
AeA Technology Scholarships; \$2,500 per year, includes internship.
Dean's Scholarships; \$1,000 to \$3,000 per year.

For a complete listing of Portland State's scholarships, visit our website at www.pdx.edu/finaid and click on scholarships. You may also contact our scholarship coordinator at 503-725-5445.

For information and an application form for engineering and computer science scholarships, call 503-725-4631 or visit www.cecs.pdx.edu.

Clubs and Organizations

To introduce electrical engineering students to professional practice, many organizations have chapters at PSU. Students can become involved with:

Institute of Electrical and Electronics Engineers (IEEE)
Robotics and Automation Society
Aerospace Engineering Society
Association for Computing Machinery (ACM)
National Society of Professional Engineers (NSPE)
Society of Women Engineers (SWE)
Eta Kappa Nu (HKN) International Electrical Engineering Honor Society
Tau Beta Pi (TBP)-National Engineering Honor Society
National Society of Black Engineers (NSBE)

Requirements for Major

Freshman Year Credits

EAS 101 Engineering Problem Solving (4)
EAS 102 Engineering Computation Structures or CS 161 Intro. to Computer Science I (4)

ECE 171 Digital Circuits (4)
Mth 251, 252, 253 Calculus I, II, III (12)
Ph 221, 222, 223 General Physics (with Calculus) (9)
Ph 214, 215, 216 Physics Laboratory (3)
Freshman Inquiry (15)
Total (51)

Sophomore Year Credits

ECE 201, 202, 203 Electrical Engineering Laboratory I, II, III (3)
ECE 221 Electric Circuits (4)
ECE 222 Signals and Systems (4)
ECE 223 Signals and Systems II (4)
ECE 271 Digital Systems (5)
Ch 221 General Chemistry (4)
Ch 227 General Chemistry Laboratory (1)
Mth 256 Applied Differential Equations I (4)
Mth 261 Introduction to Linear Algebra (4)
Mth 254 Calculus IV (4)
Sophomore Inquiry (12)
Total (48)

Junior Year Credits

ECE 301, 302, 303 Electrical Engineering Laboratory IV, V, VI (3)
ECE 321, 322, 323 Electronics I, II, III (12)
ECE 311 Feedback and Control (5)
ECE 331 Electromagnetics I (4)
ECE 332 Electromagnetics II (5)
ECE Junior Elective (Choose two courses from: ECE 371 Microprocessors, ECE 372 Microprocessor Interfacing and Embedded Systems, ECE 351 Hardware Design Languages and Prototyping, ME 321 Introduction to Thermodynamics) (8)
Stat 451 Applied Statistics for Engineers and Scientists (4)
Ph 319 Solid State Physics for Engineering Students (4)
Wr 227 Technical Writing (4)
Total (49)

Senior Year Credits

ECE 411, 412, 413 (8)
EC 314U Private and Public Investment (4)
Approved electrical engineering electives (20)
Upper-division cluster (12)
Total (44)

Note: Degree requirements are subject to change.