

An Electrical Engineering Career

The electrical and electronic engineering field is dynamic, with more than half of electrical engineering specialties developed during the last twenty years. Ongoing contributions of electrical engineers include:

- electric vehicles
- optoelectronic integrated circuits
- signal acquisition and control
- robotics
- consumer product development for the home entertainment and personal communications markets
- wireless and fiber optic communication systems
- power distribution

Because of rapidly expanding markets, the number of electrical and electronic engineers exceeds all other types in the United States.

The E&EE Department at Sacramento State

Our E&EE Department offers B.S. and M.S. degrees in Electrical and Electronic Engineering and enrolls approximately 600 students. The E&EE and CSC Departments jointly support the B.S. and M.S. degree programs in Computer Engineering. All of the B.S. programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The major strengths of this program lie in its faculty, the basic philosophy on which the curriculum is built, and the outstanding laboratory facilities in the engineering building.

The curriculum is based on providing a sound engineering background with small class sizes.

Students receive a comprehensive background in mathematics, physics, chemistry, computer science and engineering science during their first four semesters. Engineering design and application are stressed in upper-division courses.

E&EE Curriculum

Because of the rapid expansion of the field, our graduates must apply their skills in new contexts and learn to appreciate and manage intelligently the consequences of their technical decisions. Thus, the Electrical and Electronic Engineering B.S. graduate needs to be exposed to an increased number of critical topics. Our curriculum provides this exposure and emphasizes hands-on experience through laboratory courses.

Our program provides:

- breadth via required core courses,
- depth via the electives; and
- a culminating experience to practice design knowledge gained through the curriculum.

The core curriculum consists of:

- Circuits and Electronics
- Communications
- Control Systems
- Microprocessors
- Electromagnetics
- Electric Machines

At the senior level, the curriculum allows flexibility by offering 13 units of electives from four distinct areas:

- Analog/Digital Electronics
- Control Systems
- Communications
- Power

Seven of these elective units must be from within one of the four areas and include a laboratory.

The senior design project requires the students to work in teams and integrate the knowledge gained from specialty areas to solve a complex design problem. It is a one-year course sequence and serves as a capstone requirement, allowing students to apply their design knowledge from previous course work, making it consistent with their career goals.
High School and Community College Preparation

Foundation courses in math, physics, chemistry and computer science are useful in preparing you for electrical and electronic engineering. Completion of a pre-calculus class while still in high school will assist you in completing the B.S. degree in a timely manner.

Articulation agreements for college-credit courses are available through Sacramento State or your high school/community college counselor’s office. Credit for most lower division courses can be transferred to Sacramento State.

Faculty

The department has 10 full time faculty, two half-time emeritus faculty, and several part-time instructors. Our faculty are active in course and curriculum development, scholarly and creative activities, and professional technical societies.

Institute of Electrical and Electronic Engineers, Student Branch Activities

The department’s EEE Student Branch is among the most active chapters in the Sacramento Section. It actively promotes student professional development and provides members with opportunities to interact with engineers and scientists from industry. It is a focal point in the career of the electrical and electronic engineering student at Sacramento State and provides invaluable leadership experience, communication skills, and professional awareness.

The student branch plans a wide array of activities and assists with events such as the Engineering and Com-