Electrical Engineering and Computer Sciences

Overview

The Department of Electrical Engineering and Computer Sciences (EECS) offers one of the strongest research and instructional programs in this field anywhere in the world. Our key strength is our array of cross-disciplinary, team-driven projects. The integration of Electrical Engineering (EE) and Computer Science (CS) forms the core, with strong interactions that extend into the biological sciences, mechanical and civil engineering, the physical sciences, chemistry, mathematics, and operations research. Our programs have been consistently ranked in the top three nationwide and worldwide by various organizations.

Each year, top students from all parts of the world are attracted to Berkeley's EECS program by the excellence of the faculty, the breadth of the educational opportunities in EECS and across the campus, our proximity to the vibrant California tech sector, and the Berkeley environment. The department's close ties to the industry, coupled with its commitment to engineering research and education, ensure that students receive a rigorous, relevant, and broad education.

Faculty members at Berkeley are committed to research and discovery at the highest level, informed and creative teaching, and the creative desire to excel. The distinction of the EECS faculty has been recognized in a long list of prestigious honors and awards, including two National Medals of Science, six ACM Turing Awards, four IEEE Medals of Honor, 44 members of the National Academy of Engineering, eighteen members of the National Academy of Sciences, and 26 fellows of the American Academy of Arts and Sciences.

Unlike many institutions of similar stature, regular faculty teach the vast majority of our courses, and the most exceptional teachers are often also the most exceptional researchers. The department's list of active teaching faculty includes seven winners of the prestigious Berkeley Campus Distinguished Teaching Award.

The mission of the EECS Department has three parts:

1. Educating future leaders in academia, government, industry, and entrepreneurial pursuit, through a rigorous curriculum of theory and application that develops the ability to solve problems, individually and in teams
2. Creating knowledge of fundamental principles and innovative technologies, through research within the core areas of EECS, and in collaboration with other disciplines, that is distinguished by its impact on academia, industry, and society
3. Serving the communities to which we belong, at local, national, and international levels, with a deep awareness of our ethical responsibilities to our profession and to society

Our strategy to accomplish this mission is simple: recruit and retain the very best faculty, students, and staff, and then empower them to direct and drive the creation and dissemination of knowledge. We know that we have succeeded in this mission when our students succeed, becoming leaders and serving society.

Electrical Engineering began on the Berkeley campus more than a century ago, with the hiring of its first electrical engineer, Clarence Cory, into the College of Mechanics. The early days focused on electric power production and distribution, and Cory's laboratory, in fact, provided the first light and power for the entire campus.

The evolution since then has been dramatic, accelerating rapidly in the latter half of the twentieth century. The development of our world-class computer science faculty followed naturally from the synergies between electronics, systems theory, and computing. In the twenty-first century, EECS has become a broader field, defined more by its intellectual approach to engineering problems than by particular technical solutions. Broadly, EECS harnesses physical processes to perform logical functions, and hence easily extends beyond its core technological base in electronics to, for example, biological systems.

We have current strengths in biosystems and computational biology, nanotechnology, artificial intelligence, concurrent and distributed systems, embedded systems, novel devices (such as organic semiconductors), robotics, advanced networking, computer security and trusted computing, energy, and sensor networks, which complement beautifully our more traditional strengths in physical electronics, integrated circuits, operating systems and networking, graphics and human-computer interaction, communications systems, computer architecture, control theory, signal processing, the theory of computing, programming languages, scientific computing, electronic design automation, power systems, and database management systems. Many of our current research projects are focused on enormous societal challenges and opportunities such as energy efficiency, network intelligence, transportation systems, security, and health care.

Our graduate programs emphasize research, preparing students for leadership positions in industrial labs, government, or academia. Our laboratory and computing facilities are among the best anywhere and have conceived many transformative inventions. Our research programs are well funded, and nearly all of our PhD students receive full financial support.

Undergraduate Programs

Computer Science (http://guide.berkeley.edu/undergraduate/degree-programs/computer-science/): BA (major program offered through the College of Letters and Science), Minor
Electrical Engineering and Computer Sciences (http://guide.berkeley.edu/undergraduate/degree-programs/electrical-engineering-computer-sciences/): BS, Minor
Electronic Intelligent Systems (http://guide.berkeley.edu/undergraduate/degree-programs/electronic-intelligent-systems/): Minor
Electrical Engineering and Computer Sciences/Materials Science and Engineering (http://guide.berkeley.edu/undergraduate/degree-programs/electrical-engineering-computer-sciences-materials/): BS (Joint Major)
Electrical Engineering and Computer Sciences/Nuclear Engineering (http://guide.berkeley.edu/undergraduate/degree-programs/electrical-engineering-computer-sciences-nuclear-joint-major/): BS (Joint Major)

Graduate Programs

Computer Science (http://guide.berkeley.edu/graduate/degree-programs/computer-science/): MS, MEng, PhD
Electrical Engineering and Computer Sciences (http://guide.berkeley.edu/graduate/degree-programs/electrical-engineering-computer-sciences/): MEng, MS, PhD
Select a subject to view courses

- Electrical Engineering and Computer Sciences (p. 2)
- Computer Science (p. 2)
- Electrical Engineering (p. 2)

**Electrical Engineering and Computer Sciences**

Expand all course descriptions [+]Collapse all course descriptions [-]

**Computer Science**

Expand all course descriptions [+]Collapse all course descriptions [-]

**Electrical Engineering**

Expand all course descriptions [+]Collapse all course descriptions [-]