

Master of Science in Computer Engineering

College of Engineering and Computer Science

Why pursue the Master of Science degree in Computer Engineering?

The M.S. program in Computer Engineering is designed to provide students with a strong understanding of the hardware design and practical applications of computer-based systems. Courses in contemporary and highly evolving computer engineering areas provide students with extensive hardware design and modeling experience, exposure to state-of-the-art Electronic Design Automation (EDA) tools and the ability to design and analyze today's modern computer systems. The program integrates pertinent science, mathematics and engineering courses in order to develop an engineer capable of designing and analyzing all aspects of modern computer and embedded systems. After completion of the degree program, graduates will have an extensive theoretical knowledge and practical background in all aspects of computer-based systems, along with an in-depth knowledge in engineering analysis, design, implementation and testing. The program will prepare students for engineering jobs that require computer hardware skills

Why choose Cal State Fullerton?

Distinguished Faculty - Our faculty members are highly qualified and diverse. The College of Engineering and Computer Science supports high-quality teaching, learning and research by providing a well-equipped instructional environment and investing in student internships. Our faculty members are experienced professionals, hold doctoral degrees from prestigious universities, and have active research programs in computer engineering, electrical engineering and computer science. Adjunct faculty who bring students important knowledge of current practices and trends in computer engineering supplement the full-time faculty members.

Preparation for further graduate work - The M.S. program in Computer Engineering is designed to be flexible enough to provide excellent preparation for further graduate work.

Student participation in research - Our graduate students have the opportunity to participate in research activities through various means, which include, but are not limited to, project, thesis or independent graduate research. Although the college does not require student participation in research, many of our students participate in one or more research projects



before graduation. Most grant-supported research in the college includes funds to support student research. Several of our students have co-authored research papers with faculty members.

Industrial partnerships - Partnerships with leading companies enable students and faculty to collaborate on funded projects of mutual interest with company engineers and scientists. Students gain invaluable practical experience and develop the skills necessary to work effectively in an industrial environment.

What types of career opportunities are available?

The proliferation of embedded systems in an increasing array of industrial products assures a ready market for graduates in the computer engineering discipline. Computer engineers are employed in a wide range of industries including VLSI chip design and manufacturing, autonomous systems, consumer electronics, expert systems, smart devices, digital signal processing (DSP) systems, computer manufacturing from PDAs to super computers, and automatic controls. A majority of products such as airplanes, automobiles, home appliances, consumer electronics and robots, to name a few, use computers and employ computer engineers in their designs. Computer engineers are also needed in the design and implementation of computer networks for business, industrial, and governmental institutions.

What is required for admission to the M.S. program?

At the time of admission into the M.S. program, students should:

- Have completed a four-year college course of study and hold an undergraduate degree in computer engineering or a related discipline from an ABET accredited institution, or from an institution accredited by a regional accrediting association;
- Be in good academic standing at the last college or university attended; and
- Have attained a minimum grade point average of 2.5 in cumulative or the last 60 semester units (90 quarter units)

Admission Requirements for International Students

International students must meet all the requirements listed above in the Admission Requirements. Verification of English proficiency and financial resources will be governed by the criteria established by the University. All international students must submit their TOEFL score before they can be admitted to the program. A minimum score of 80 on the Internet-Based TOEFL (IBT), or 213 on the Computer-Based TOEFL (CBT), or 550 on the Paper-Based TOEFL (PBT) is required. Alternatively, a minimum International English Language Testing System (IELTS) score of 6.5 is also acceptable.

What courses are required?

A student in the program must complete 30 semester units of coursework beyond the bachelor's degree, which will be included in a graduate-adviser-approved formal Study Plan. This includes 18 units of core courses.

Required core courses for the Graduate Study Plan (18 units)

EGCP 456 Introduction to Logic Design in Nanotechnology (3 units)

EGCP461 Low Power Digital IC Design (3 units)

EGCP 520 Advanced Computer Architecture (3 units)

EGCP 541 Mixed-Signal IC Design (3 units)

EGCP 542 VLSI Testing and Design for Testability (3 units)

EGCP 556 Advanced Nanoelectronics (3 units)

Culminating Experience (0-6 units)

The degree program requires a culminating experience, which can be met through one of the following: Comprehensive Examination, Project, or Thesis.

Technical Electives (6-12 units)

Based on the culminating experience chosen, students also are required to choose a certain number of elective courses, with the approval of the graduate adviser, from the following areas: Wireless Communication, Very Large Scale Integration (VLSI) and Optics, Control Systems and Systems Engineering, Microprocessors and Microcomputer Systems, Computer Networks, Hardware Security, Global Positioning Systems (GPS), Software Engineering, Database System Design, Multimedia and Digital Game Development and Intelligent Systems.

Are there special programs or internships available?

Computer engineering majors may take advantage of the opportunities provided by the Center for Internships and Community Engagement. Internships provide students with opportunities to gain work experience, network and develop industry contacts, solidify academic and career goals, earn money while learning, and explore career options within the major.

What types of financial aid and scholarships are available?

Scholarships such as the Alumni Association Scholarship, the ECS Dean's Scholarship and the Emmett D. Burnett Scholarship are awarded to eligible students in the College of Engineering and Computer Science. Additional scholarships are available to students in the major from off-campus sources such as professional societies, civic foundations and corporations, and are listed online at: fullerton.edu/financialaid/scholar/scholarships_default.htm.

For financial aid consideration, please call the Office of Financial Aid at 657-278-3125, or visit fullerton.edu/financialaid/ for additional details and information.

How can I get involved?

Academic preparation is just one facet of our program. Students enjoy opportunities for leadership and participation in clubs and organizations, research, community service and assistantships. Students can choose from a roster of award-winning professional student organizations, including the Institute of Electrical and Electronics Engineers (IEEE) Computer Society, Association for Computing Machinery (ACM), National Society of Black Engineers (NSBE), Society of Hispanic Professional Engineers (SHPE), Society of Mexican-American Engineers and Scientists (MAES), Society of Women Engineers (SWE), and Tau Beta Pi Engineering Honor Society (TBP).

Who advises me?

Graduate students in the computer engineering program are advised by the graduate adviser. The program requires that the Study Plan be approved by the graduate adviser prior to the completion of 13 units of Study Plan coursework.

How can I learn more?

Additional information is available on the Computer Engineering Program website at fullerton.edu/ecs/cpe or via email at cpenprogram@fullerton.edu. Our program office is located in the Engineering Building, room E-100G. Please call us at 657-278-5987 if you need an appointment or contact us by mail at: California State University Fullerton, Computer Engineering Program (E-100G), Fullerton, CA 92834-6870. Fax: 657-278-5804.

