Bachelor of Science in Civil Engineering

College of Engineering and Computer Science

Why major in civil engineering?

Civil or architectural engineers are often described as builders and problem solvers. In their basic role of applying science and technology to meet human needs, these engineers not only develop plans and designs, but also see that projects are carried through to successful completion. Civil engineers need a firm knowledge of the sciences and mathematics, and also have increasing responsibility for the social, economic and practical aspects of technology.

Why choose Cal State Fullerton?

Our program strength is in the design content of the curriculum. Nine design courses are offered that meet or exceed the standards of professional practice. All of the design courses are taught by faculty members who are registered professional engineers and have extensive field experience. Students learn state-of-the-art design principles and practices that provide a tremendous asset in professional life

Teaching is our first priority. We focus on undergraduate education and master's degree programs rather than doctoral programs. As a result, faculty members devote more time to teaching rather than fulfilling the demands of a heavy research schedule usually required by doctoral programs. In addition to the teaching skills of the civil and environmental engineering faculty members, all of our classes, even at the introductory level, are small. Students have the opportunity to get to know their instructors.

Distinguished faculty. Our faculty members are experienced professionals, who hold doctoral degrees from prestigious universities. Although teaching is their first priority, most of them have active research programs in civil or environmental engineering. Funding comes from government agencies such as the Department of Defense, the United States Armed Forces and NASA, and from corporate sources. The full-time faculty members are supplemented by adjunct faculty, who bring students important knowledge of current practice and trends in the civil and environmental engineering professions.

Preparation for graduate work. The Bachelor of Science degree in Civil Engineering is designed to be flexible enough to provide excellent preparation for graduate work. Many of our students, including those who have full-time positions in industry, continue their education and obtain advanced degrees.

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Student participation in research. Although the college does not require undergraduate research, many of our students participate in one or more research projects before graduation. Most grant-supported research in the department includes funds to support undergraduate students. Several of our undergraduate students have co-authored research papers with faculty members.

Industrial partnerships. Partnerships with leading companies enable students and faculty members to collaborate on funded projects of mutual interest with the firms' engineers. Students gain invaluable practical experience and develop the skills to work effectively in an interdisciplinary environment.

Accreditation. The Bachelor of Science degree in Civil Engineering at Cal State Fullerton is accredited by the Accreditation Board for Engineering and Technology (ABET).

What types of career opportunities are available?

The B.S. degree in civil engineering prepares students for a variety of careers including structural, geotechnical, hydraulic, architectural, construction, environmental and transportation engineering. Civil engineers are employed in practically every field, including manufacturing, transportation, construction, business, education, government, health care and many other areas.

What courses are required?

All civil engineering majors take 12 units of introductory engineering core courses, 31 units of foundation courses in mathematics and the physical sciences, 30 units of general education courses and 42 units of required core courses in civil engineering and 14 units of technical electives for a total of 129 units.

Introductory Engineering Courses (12 units)
All civil engineering students are required to complete the following 12 units of introductory engineering core courses: EG-CE 201, 302; EG-CE 308 EG-GN 314 and EG-CE 490.

Mathematics and Physical Science Courses (31 units)
Mathematics 150A and B, 250A and B; Chemistry 115, Biology 101, Physics 225 and 225L, 226 and 226L.

General Education Courses (30 units)
Students complete courses to fulfill the following categories: Core Competencies, Historical and Cultural Foundations, Disciplinary Learning and Cultural Diversity. Specific courses to meet these requirements are listed under the "Department of Civil Engineering" section in the university catalog.

Required Courses in Civil Engineering (42 units)
EG-CE 206 Architectural and Civil Engineering Applications (1 unit)
EG-CE 214 Engineering Surveying (2 units)
EG-CE 214L Engineering Surveying Laboratory (1 unit)
EG-CE 301 Mechanics of Materials (3 units)
EG-CE 324 Soil Mechanics (3 units)
EG-CE 324L Soil Mechanics Laboratory (1 unit)
EG-CE 325 Structural Analysis (3 units)
EG-CE 325L Structural Analysis Laboratory (1 unit)
EG-CE 377 Civil Engineering Materials Laboratory (1 unit)
EG-CE 408 Reinforced Concrete Design (3 units)
EG-CE 418 Foundation Design (3 units)

EG-CE 428 Engineering Hydraulics (3 units)
EG-CE 428L Engineering Hydraulics Laboratory (1 unit)
EG-CE 430 Structural Steel Design (3 units)
EG-CE 432 Computer-Aided Design in Civil Engineering (3 units)
EG-CE 441 Environmental Engineering (3 units)
EG-CE 468 Engineering Construction (3 units)
EG-CE 494 Design of Civil Engineering Structures (3 units)
EG-CE 494L Civil Engineering Structural Laboratory (1 unit)

Technical Electives in Civil Engineering (14 units)
Technical electives must be approved in advance by your academic adviser and include 14 units of the following: EG-CE 411, EG-CE 431L, 435, 436, 463, 463L, 465, 466, 481, 482, 493, 497, 499, Chem 125, Geol 376, EG-EE 203, EG-ME 304.

Emphasis in Architectural Engineering
For the emphasis in Architectural Engineering, all students take 12 units of introductory engineering core courses, 31 units of foundation courses in mathematics and physical sciences, 30 units of general education courses, 42 units required for the emphasis, and 14 units of technical electives for a total of 129 units.

Required Courses for the Civil/Architectural Engineering Emphasis (42 units)
EG-CE 206 Architectural and Civil Engineering Applications (1 unit)
EG-CE 214 Engineering Surveying (2 units)
EG-CE 214L Engineering Surveying Laboratory (1 unit)
EG-CE 301 Mechanics of Materials (3 units)
EG-CE 324 Soil Mechanics (3 units)
EG-CE 324L Soil Mechanics Laboratory (1 unit)
EG-CE 325 Structural Analysis (3 units)
EG-CE 325L Structural Analysis Laboratory (1 unit)
EG-CE 377 Civil Engineering Materials Laboratory (1 unit)
EG-CE 408 Reinforced Concrete Design (3 units)
EG-CE 418 Foundation Design (3 units)
EG-CE 428 Engineering Hydraulics (3 units)
EG-CE 428L Engineering Hydraulics Laboratory (1 unit)
EG-CE 430 Structural Steel Design (3 units)
EG-CE 432 Computer-Aided Design in Civil Engineering (3 units)
EG-CE 468 Engineering Construction (3 units)
EG-CE 494 Design of Civil Engineering Structures (3 units)
EG-CE 494L Civil Engineering Structural Laboratory (1 unit)
EG-CE 496 Architectural Engineering Design (3 units)

Technical Electives for the Emphasis in Architectural Engineering (14 units)
EG-CE 411, EG-CE 431L, 435, 436, 441, 463, 463L, 465, 466, 481, 482, 493, 497, 499, Chem 125, Geol 376, EG-EE 203, EG-ME 304.

Second Language Graduation Requirement
Since the Bachelor of Science in Civil Engineering is a high unit program, majors are exempt from the Second Language Graduation Requirement.

What types of scholarships and financial aid are available?

The Emmett D. Burnett Scholarship and the Eugene Birnbaum Award 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.

For financial aid consideration, call the Office of Financial Aid at (714) 278-3125.

Are there special programs or internships available?

Civil engineering majors may take advantage of the opportunities provided by the Center for Internships and Service-Learning. Internships allow students the opportunity to gain work experience, network and develop industry contacts, solidify academic and career goals, earn money while learning and explore various career options.

In addition, the Center for Academic Support in Engineering and Computer Science (CASECS) provides services that help educationally-disadvantaged students achieve a higher level of academic success in engineering and computer science. For more information, call (714) 278-3879

How can I get involved?

Students can choose from a roster of award-winning professional student organizations, including: American Society of Civil Engineers (ASCE), 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?

Civil engineering students are advised by the department faculty members. Students may make an advising appointment by calling (714) 278-3012.

How can I learn more?

Additional information is available on the College of Engineering and Computer Science's website at: www.fullerton.edu/ecs/. You can ask us questions via e-mail at: ecsinfo@fullerton.edu.

You are also welcome to write to us by mail or fax. Our address is:

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California State University, Fullerton
P.O. Box 6870, Engineering 100, Fullerton, CA 92834-6870,
(714) 278-3012, and Fax: (714) 278-3916.

The most complete and authoritative information is found in the Department of Civil and Environmental Engineering Undergraduate Handbook. Contact us to request your copy.