Civil Engineering

Civil engineers plan, design and build the structures and systems essential to American civilization: buildings, bridges, tunnels and dams; harbors and airports; waterways, railways and highways; water treatment plants; irrigation and drainage systems; landfills; and wastewater treatment plants. This is one of the few areas of engineering in which the engineer deals directly with the public in every phase of the job.

Civil engineering at Ohio State offers the prospective student an exciting academic program enhanced by experiences in state-of-the-art laboratory facilities. We offer a challenging environment designed to provide students with the resources and background necessary to pursue activities in the many different areas of civil engineering. The department’s professors are internationally recognized as leaders in their respective areas.

Pursuing Civil Engineering at Ohio State
Students interested in civil engineering as a major should have strong high school preparation in math and physics as well as in written and verbal communication. Students should have curiosity about how things work, the ability to work on a team, an interest in helping people and a concern for the environment.

Students may directly enroll as pre-engineering students; however, selection is competitive. Factors used to determine eligibility to directly enroll include ACT/SAT scores (emphasis on math), strong college prep curriculum (emphasis on math, science and rigorous courses), and class rank or GPA. The middle 50 percent of directly enrolled pre-majors (autumn 2014) had an ACT score range of 28–32 and 96 percent were in the top 25 percent of their high school classes. Students not eligible to directly enroll in engineering may enroll in Science, Technology and Environment Exploration (see exploration.osu.edu).

As soon as the student is enrolled at Ohio State, he or she begins work in the pre-major courses: first-year writing, Engineering Calculus I and II, Physics I and II, Introduction to Engineering I and II, Engineering Survey, and Computer Programming.

To be admitted to the civil engineering major, students must earn a minimum 2.0 cumulative point-hour ratio (CPHR), as well as an eligibility point-hour ratio (EPHR) of 2.5 in the following pre-major courses:

- Engineering 1181 and 1182
- Mathematics 1151 and 1172
- Physics 1250
- Physics 1251 or Chemistry 1250

Application to the major is not allowed until the semester during which the EPHR courses are to be completed.

For more information, check these websites:

Civil Engineering: ceg.osu.edu
College of Engineering: engineering.osu.edu
Ohio State: osu.edu
Admissions: undergrad.osu.edu
Multicultural Center: multiculturalcenter.osu.edu
First Year Experience: fye.osu.edu
Curriculum Sample
This is the sample list of classes a student will take to pursue a degree in civil engineering. Since university students need more than specific education in a narrow field, they also will take classes to complete General Education (GE) requirements. Because GE courses come from a variety of academic areas of study, this course work helps students develop fundamental skills essential to collegiate success and allows them to tailor these courses toward their interests. Note: This sample represents one of several possible paths to a degree in civil engineering. Consult the departmental website, ceg.osu.edu, for details.

Freshman Year:
Survey course                          1
Calculus and Engineering Mathematics 10
Physics                               10
Computer Programming                  2
Introduction to Engineering           4
GE courses                             6
Total hours                             33

Sophomore Year:
Engineering Mathematics               4
Chemistry for Engineers                4
Statics                                2
Dynamics                               3
Strength of Materials                  3
Probability and Data Analysis in CEE   3
Numerical Methods for CEE              4
Professional Aspects of CEE            1
CE core course*                        3
GE courses                             6
Total hours                             33

Junior Year:
Civil Engineering Materials            3
Fluid Mechanics                        3
Structural Engineering Principles      3
CEE Economics and Optimization         3
CE core courses*                       12
Additional science elective            4
GE courses                             3
Total hours                             31

Senior Year:
Capstone Design                        4
CE core course*                        3
CE technical electives                 18
GE courses                             9
Total hours                             34

*CE core courses to be chosen from: Construction Management, Fundamentals of Environmental Engineering, Geotechnical Engineering, Structural Design elective, Surveying, Transportation Engineering and Analysis, Water Resources Engineering

Ohio State’s civil engineering program is accredited by the Engineering Accreditation Commission of ABET, abet.org.

Water resources and environmental engineering: control and management of water resources, fluid mechanics, optimization for best use of water systems, surface water runoff, ground water supplies, future water demand, planning of river and coastal areas for controlling water damage, improvement of navigation, and production of hydropower, water supply, environmental chemistry, wastewater management, ecological engineering and geostatistics, solid and hazardous waste management and remediation

Transportation and geodetic engineering: traffic studies, geometric design, public transportation, airport design, and traffic engineering; monitoring and measuring land and water resources using aircraft and satellite sensors, surveying and mapping, satellite photogrammetry, and computer processing of satellite data.

Co-Curricular Opportunities
Engineering students are encouraged to pursue co-ops and internships to gain real work experience. Positions are available in both the private and public sector across the United States. Engineering Career Services can assist engineering students with resume writing, interviewing, and finding co-op, internship and full-time positions. Learn more at ecs.osu.edu/students/engineering-co-op-internship-program-ecip.

There are hundreds of student organizations on campus to meet the interests of a diverse student population. Go to ceg.osu.edu/undergraduate/student-activities-organizations for a list of student chapters of national societies, organizations and various project teams that may be of interest to civil engineering students.

Honors & Scholars Programs
Ohio State offers the Honors and Scholars programs to create an environment of intellectual support and stimulation within a close-knit community of high-ability undergraduate students. Through these programs, students have access to smaller classes, undergraduate research opportunities, close working relationships with faculty, priority scheduling and unique housing options. Learn more at honors-scholars.osu.edu.

Career Prospects in Civil Engineering
As environmental concerns mount, the technological revolution expands, and we pioneer into space, the demand for civil engineers will rise. They will design, build and maintain the facilities essential to our civilization. This demand will be augmented by the effort to rebuild the nation’s infrastructure, including highways, bridges, water and wastewater treatment plants, and other public buildings.

Employment in various government agencies, the aerospace industry, consulting, engineering marketing or sales, and private industry provides career opportunities, which are many and varied depending upon the type of civil engineering pursued. Salaries are competitive with all other engineering areas. Typical starting salaries range from $50,000–79,000. Job growth in civil engineering is expected to be strong over the next decade, especially with the current national interest in infrastructure and the environment. In fact, civil engineers are always in demand.

Revised July 2015. Information subject to change. For the most up-to-date information on the civil engineering program, please visit ceg.osu.edu.

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