What Civil Engineers Do

- As an environmental engineer, you will use your skills to preserve the fragile resources of our planet. In this field you may turn an old landfill into a park, design a plant to improve water quality, or monitor community air quality.
- As a structural engineer, you may design, construct, and even manage bridges, buildings, offshore structures, or even amusement park rides. Working with combinations of steel, concrete, timber, plastic and many new materials you plan and design structures to withstand many forces such as wind, temperature and earthquakes.
- As a geotechnical engineer, you will design building foundations, tunnels, dams and retaining walls. All projects require the skills of this engineer to analyze the soils and rock supporting the structures.
- As a water resources engineer, you will work with others to create designs that prevent floods, supply water to cities, and protect beaches and harbors.
- As a transportation engineer, you will design the systems that move people, goods, and materials from one place to another. This engineer finds ways to meet increasing travel needs on air, sea and land with new systems and technology.

A civil engineering career provides challenge, diversity, and opportunity.

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Department of Civil & Environmental Engineering

- Geotechnical & Geoenvironmental
- Structural & Materials
- Water Resources & Environmental Systems
- Transportation Systems

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Civil & Environmental Engineering Department Programs

The Department administers an undergraduate degree program leading to a Bachelor of Science in Civil Engineering Degree (BSCE) which is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology, Inc. (ABET). Students following the Civil Engineering curriculum have the opportunity during their senior year to specialize with elective courses in the areas of Geotechnical, Transportation, Structures, Materials, Water Resources, or Environmental Engineering. These are fields of study that have special significance for the state of Florida and the Tampa Bay area. Both private industry and public agencies offer many career opportunities for graduates in these fields. Brief descriptions of the job activities of engineers in these disciplines and the employment opportunities are presented in the following sections.

The primary function of the Department is the delivery of a quality educational program for its students. In addition to the undergraduate BSCE program, both master's and doctoral graduate programs are available. Because of the large local population, a special part-time three-year masters evening program is offered for graduate engineers in the Tampa Bay Region.

Civil Engineers provide the buildings you work in, the roads you drive on, the bridges you cross, and the water you drink.

Department Specializations

Geotechnical & Geoenvironmental Engineering: The geotechnical engineer must be knowledgeable about structural design, fluid flow in soils, environmental concerns, and engineering geology. Good written and oral communication skills are essential. Familiarity with current construction practices and techniques is also important. Generally, graduate study is recommended for persons serious about pursuing a career in Geotechnical Engineering.

- *Courses Include:* Geotechnical Engineering I & II, Surveying

Structural & Materials Engineering: When most people think of Civil Engineering, they usually think of the handiwork of the structural engineer. Structural engineers are responsible for designing great bridges, skyscrapers, factories, commercial buildings and power-plant buildings one sees all over the world. They are also responsible for lesser-seen structures such as offshore oil platforms and outer space structures.

- *Courses Include*: Concepts of Steel Design, Concrete Construction Materials

Transportation Systems: The field of Transportation Systems Engineering (TSE) encompasses a wide range of subjects including planning, design, and monitoring of transportation infrastructure, systems safety, and applications of emerging and advanced technologies in transportation, network optimization, large-scale microsimulation modeling, and intelligent transportation systems.

- *Courses Include*: Transportation Engineering, Transportation & Society

Water Resources & Environmental Systems: With the continued rapid growth of the world's population, water becomes a more valuable resource with every passing day. The water resources engineer is educated to address critical problems that include locating and developing reliable sources of water, distributing water to users, adequately treating and recycling waste waters, and protecting natural water bodies from environmental degradation.

- *Courses Include*: Water Resources Engineering I & II, Water Quality & Treatment

Why Pick Civil Engineering at USF?

- **Dedicated faculty providing individual attention.** In the Department, there are approximately 200 undergraduate students and 25 faculty members who are dedicated to providing students with a quality undergraduate education.
- **State-of-the-Art Laboratories.** Over one million dollars of new equipment has been purchased in the last five years.
- **Outstanding Faculty.** Over 1.5 million in sponsored research annually
- **Student Organizations.** The Department actively encourages student involvement in student chapters of professional societies. In these societies, students can learn about the profession, get help and support from fellow students, and participate in activities such as the concrete canoe competition and steel bridge competition. This involvement provides an opportunity for students to interface and network with professional engineers.
- **International Capstone.** The course involves international travel and work on a construction site, feasibility studies and engineering design with creation of construction plans and specifications.
- **Engineers without Borders.** A non-profit humanitarian organization established to partner with developing communities worldwide in order to improve their quality of life.

Civil engineering can serve as the gateway to a number of career opportunities such as research, fieldwork, and design.