

CIVIL ENGINEERING, B.S. (ENGINEERING)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The program in Civil and Environmental Engineering is designed to provide the basic undergraduate education required for private practice and public service in civil engineering and/or continue formal education. Emphasis is placed on the fundamentals of civil engineering principles and design techniques. Students utilize basic engineering science concepts in several of the different specialty areas (e.g., construction/management, environmental, materials/pavement design/geotechnical, structures, transportation, and water resources). Finally the students are able to choose an area of specialization for professional practice or graduate studies.

The program is broadened by courses in communication, arts, humanities, social and behavioral sciences, as well as other engineering disciplines. Students gain experience in working as members of a team and using interdisciplinary approaches to solve problems. These experiences, as well as those related to engineering principles and design, are provided through exercises in the classroom, laboratory, and field. The program culmination is a capstone design course wherein the students' knowledge and skills are applied to actual engineering problems.

What is Civil Engineering?

Civil engineers (CEs) engineer tomorrow and reimagine infrastructure, contributing to almost every aspect of the design and construction of the built environment, while protecting our natural resources. CEs tackle some of the biggest problems facing society today and lead the industry in research discoveries and design innovations. As we transition to sustainable development around the world, the work of CEs is expanding from the design and construction of traditional highways, buildings, and water treatment systems to innovations in efficient mobility systems, advanced construction materials, sustainable waste management, and the use of artificial intelligence (AI) for solving complex engineering challenges.

Civil engineers have diverse opportunities to work in technical, managerial, or entrepreneurial roles, ranging from local to global for both public and private organizations. For example, CEs enjoy careers as project engineers, project/facility managers, technical experts, and directors/owners of consulting firms, construction firms, and industries, and they can also serve the public through non-governmental organizations and public agencies. If you want to design the future through a blend of innovation, sustainability, and technology, then civil engineering is for you!

You Might Like This Program If...

- You want to design resilient infrastructure that can adapt to a changing climate.
- You want to develop engineering materials that are lighter, more durable, and have a lower carbon footprint.
- You want to use AI and machine learning to solve sustainability challenges.

- You are interested in designing safe, smart, and equitable mobility systems.
- You want to create sustainable solutions for purifying our water, soil, and air.
- You want to serve your community and make a difference in the world around you.