

MAJOR IN CONSTRUCTION ENGINEERING

CSU recognizes the industry's interest in developing a workforce pipeline of qualified construction engineers ready to make an immediate impact across the nation. This program prepares students to address the infrastructure complexities in our modern world with advanced construction solutions. The industry-centric curriculum provides a real-world design, construction, and safety foundation while also preparing students to become licensed professional engineers. Construction engineering bridges the technical expertise of civil engineering with the concrete application of construction principles across the spectrum of project delivery. The program is expected to be ABET accredited upon graduation of the first cohort of students in spring 2029.

The program achieves industry expectations and anticipated future needs by including three focus areas aligned with strengths of CSU faculty experts: heavy civil/infrastructure; structures and buildings; and water and environmental systems. The Construction Engineering degree also includes industry-informed curriculum in virtual design and construction and construction safety engineering.

The program includes an engaged industry advisory board with an active commitment to ensure the success of the program and students, and Enrichment Programming with Industry and Peer Mentorship.

Participation in student professional societies, other campus organizations, internships, and volunteer activities is highly recommended to foster personal growth and professional development. The Fundamentals of Engineering (FE) exam is the first step toward registration as a licensed Professional Engineer (PE), an important professional credential for construction engineers. Therefore, students are encouraged to take the FE exam prior to graduation. Additional information on this major is provided on the Department of Civil and Environmental Engineering website (<https://www.engr.colostate.edu/ce/undergraduate/construction-engineering/>).

Learning Objectives

The Major in Construction Engineering program strives to provide students with the knowledge, training, and opportunity to achieve the primary educational objective of rewarding careers in construction or related fields. Upon successful completion of this program, students will be able to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Communicate effectively with a range of audiences.
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. Function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives.
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Potential Occupations

Construction engineers are employed across local, state, and federal governmental agencies, engineering and construction firms, telecommunications and utility companies, and industrial, commercial, and residential land developers. Some possible career paths for graduate with a Bachelor of Science degree in Construction Engineering include, but are not limited to:

- Project Manager for public infrastructure
- Design Engineer for integrated design and construction projects
- Construction Manager for heavy civil projects (roads, bridges, pipelines, airports, etc.)
- Resident Engineer for water and wastewater treatment projects