MAJOR IN ENVIRONMENTAL ENGINEERING

Environmental engineers design solutions to prevent future environmental damage as well as reduce and resolve existing pollution problems. The undergraduate curriculum in Environmental Engineering is based on a strong foundation in physical, chemical, and biological sciences, mathematics, and engineering fundamentals. The All-University Core Curriculum (AUCC) (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/) provides a broad background in communication, liberal arts, humanities, and social sciences. Upper-division courses address engineering applications for prevention and control of air, water, and land pollution. Required courses that are specific to the Environmental Engineering major come from several engineering and science disciplines, including organic and environmental chemistry, microbiology, hydrology, statistics, environmental toxicology, and water treatment. Technical electives provide specialization in a particular area of interest. Seniors complete the same year-long, capstone design experience as Civil Engineering majors, working in teams on real-world engineering problems. Graduates who pursue advanced studies are prepared for higher-level technical responsibilities.

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 environmental engineers. Therefore, students are encouraged to take the FE exam prior to graduation. The educational outcomes and objectives for the Environmental Engineering program, along with additional information on this major, are given at Department of Civil and Environmental Engineering website (https://www.engr.colostate.edu/ce/). The Environmental Engineering major is accredited by the Engineering Accreditation Commission of ABET (http://abet.org/).

Learning Objectives

1. Demonstrate technical excellence and innovation in the ability to identify, analyze, formulate, and design resilient and sustainable Environmental Engineering solutions, both independently and in a team environment;
2. Apply considerations of technical, legal, regulatory, social, environmental, economic, and ethical factors multi-faceted and multi-disciplinary projects and programs;
3. Communicate effectively in both technical and non-technical settings using a variety of media and modes of communication with co-workers, clients, stakeholders, policy-makers, and the public;
4. Demonstrate commitment and progress in lifelong learning, professional development, and leadership, including participation in continuing education courses, workshops, and/or graduate study, and the pursuit of licensure as a Professional Engineer; and
5. Exemplify the skills and capability to engage in activities focused on the betterment of their communities and society as a whole.

Potential Occupations

Students who obtain a Bachelor of Science degree in Environmental Engineering from CSU are well prepared to solve some of the world's most challenging environmental problems, such as providing sustainable sources of high-quality water and air for the world's expanding population. Students will also be equipped to address growing detrimental impacts resulting from climate change, such as flooding, drought, and famine. The need to solve these challenging problems will contribute to the increased demand for the services of environmental engineers, both in the U.S. and abroad. Environmental engineers typically are employed in designing pollution prevention equipment and systems, designing environmental monitoring systems, implementing both government and industry environmental regulations, designing water and wastewater treatment systems, and restoring ecosystem health.

Graduates of the Environmental Engineering degree program from CSU are qualified for entry-level positions with regulatory agencies, engineering consulting firms, and environmental divisions of large corporations, particularly in the energy and manufacturing industries. Some example job titles for graduates include, but are not limited to, hydraulic engineer, water resources engineer, environmental engineer, geoenvironmental engineer, reclamation engineer, stormwater engineer, floodplain manager, groundwater engineer, hydrologist, urban/regional planner, water infrastructure engineer or manager, contract administrator, facilities engineer or manager, irrigation engineer, ecological engineer, and educator. Graduate study in a specific area of interest is highly recommended to enhance the ability to undertake more advanced technical responsibilities upon graduation.