DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

The Department of Civil and Environmental Engineering produces graduates who can design and maintain sustainable built and natural environments in society. Two closely-related undergraduate programs are offered: the BS in civil engineering and the BS in environmental engineering. Civil engineers focus more on the built environment (buildings, roads, bridges, tunnels, reservoirs and water treatment facilities). Nationally, there are more civil engineers currently employed than in any other engineering profession.

100% of 2018-19 bachelor’s graduates were either employed or in graduate school

100% of civil engineering majors passed the Fundamentals of Engineering pre-licensing exam (national average is 69%) *

20% 2014-24 projected job market growth*

STUDENT ORGANIZATIONS

- American Society of Civil Engineers
- Association of General Contractors

SAMPLE COURSEWORK

- Design of Steel Structures
- Design of Reinforced Concrete Structures
- Introduction to Construction Engineering
- Surveying for Engineers and Infrastructure Design
- Water & Wastewater Treatment Processes
- Civil Engineering Materials
- Foundation Engineering
- Hydrology and Water Resources Engineering
- Intro to Civil Infrastructure

PROGRAM SCOPE

DEGREES

- Civil Engineering Bachelor’s
- Civil and Environmental Engineering Master’s and PhD

EMPHASIS AREAS

- Structural Engineering
- Geotechnical Engineering
- Water Resources Engineering
- Engineering Surveying
- Construction Engineering

COMBINED DEGREE PROGRAM

Students can earn a master of science in as little as one additional year of study when they begin work during their bachelor’s studies.

*Information is from the 2018-19 Mines Career Center Outcomes Survey; 1 NCEES - Spring 2019; 2 BLS.gov
Civil engineering is incredibly broad and diverse; there are more licensed civil engineers than in any other field of engineering. Some alumni enjoy careers as traditional civil engineers — generalists that design the site topography, drainage and landscape. Others specialize in one of the areas highlighted below, or in other areas of civil engineering such as transportation or coastal engineering. The curriculum permits students to engage with the six fields detailed below and ultimately pursue a career that is perfectly aligned to their passion and skill set.

Seniors can earn course credit by participating in the ASCE Concrete Canoe competition (pictured), the ASCE Steel Bridge competition and a number of other challenging and fulfilling engineering design projects.

**Structural Engineering**

Structural engineers analyze and design buildings, bridges, towers, tunnels and more. They identify loads on a structure and then design steel, concrete, timber or masonry structures that can safely resist those loads. They also maintain and rehabilitate existing infrastructure.

**Water Resources**

Water resource engineers assess water supply in lakes, rivers, streams and underground in order to provide for human use while minimizing impact to ecological systems. In this career track, engineers design water infrastructure such as dams, levees and canals.

**Geotechnical Engineering**

Geotechnical engineers are responsible for using experimental and computational methods to assess the complex nature of soils and rocks that underlie a construction site. They are responsible for the overall foundation design of structures like buildings, bridges, tunnels and more.

**Engineering Surveying**

Land surveying makes use of electronic distance measurement technology and GPS to establish the boundaries of a site and trace linear infrastructure routes such as roads and railways. All civil majors at Mines learn how to survey in the field, and then apply that knowledge in the digital domain.

**Environmental Engineering**

Environmental engineers balance human needs — such as clean drinking water and energy production — with environmental and ecological stewardship. These engineers are experts in air, water and soil, and protect these resources from the effects of industry.

**Construction Engineering**

Construction engineers possess the skills to bring digital designs into the physical world. Construction engineers master scheduling, management and logistics to complete projects on time and under budget. They are experts in navigating the fast-paced and unpredictable world of construction projects.