

Undergraduate Program in **CIVIL ENGINEERING**

Civil Engineers Shape the World

Civil engineers build societies, from the landmarks that define who we are to the hidden infrastructure essential to our quality of life. Projects such as the Hoover Dam, the Tappan Zee Bridge, Boston's 'Big Dig,' the interstate highway system, and New York City's water supply system illustrate the diversity, scale, grandeur, and functionality that is civil engineering. Because they often work in the public arena, civil engineers require broad technical training as well as strong communication skills, and usually must be licensed as professional engineers.

Careers for CSEE Grads

According to the U.S. Bureau of Labor Statistics, employment for civil engineers is projected to increase by 8% through 2024. Graduates can choose from a broad spectrum of opportunities in industry, governmental agencies, private consulting firms, and construction companies, as well as in research and development. Many graduates return to school to pursue advanced degrees. A few go on to complete their PhD and obtain positions in academia.



Curriculum Overview

The BS degree in Civil Engineering is accredited by the Engineering Commission of ABET (abet.org) and prepares students for graduate study and/or professional practice.

[FRESHMAN-SOPHOMORE]

The first two years of study build the basic science and mathematics skills needed for the practice of civil engineering: physics, chemistry, earth science (geology), math through calculus and differential equations, mechanics of rigid and deformable bodies, materials, graphics, and computer programming. These courses give a solid foundation in problem solving and analytical thinking, which are essential for civil engineering students.

[JUNIOR]

The third year builds on the basic science courses and provides two-class sequences in each of the following sub-disciplines of civil engineering: structural engineering, geotechnical engineering, water resources engineering, transportation engineering, and environmental engineering. Hands-on laboratories build practical skills from the classroom instruction.

Facts About CSEE@UB

- Full-time faculty: 30
- Typical CSEE class size: 30-120
- 35,000 square feet of teaching and research labs
- \$5.5 million in annual research expenditures
- National average starting salary: **\$56,000**
- Over 3,500 alumni worldwide

Degrees offered:

- BS in Civil Engineering
- BS in Environmental Engineering
- A 5-year combined BS Civil Eng./MBA
- MS and PhD in Civil Engineering

[SENIOR]

With the background acquired in the junior year, students are equipped to take design classes and to engage in the professional practice/capstone design sequence. Students can pursue a specialization track by choosing relevant technical electives in one of the sub-disciplines introduced in the junior year, or in the area of construction engineering and management.

[BS CIVIL ENGINEERING/ MBA STUDENTS]

Students in the joint BS Civil Engineering/MBA program will take primarily business classes in the senior year, and complete their professional practice/capstone design sequence in the fifth year of study.

Did You Know?

You can get paid to go to graduate school. Many of our graduates choose to continue their studies at UB or attend other top tier universities, such as MIT, Purdue, Carnegie Mellon, UC Berkeley, UT Austin and Texas A&M. Top graduate students at UB receive tuition scholarships and a stipend to support their studies.

Learning by Experience

The School of Engineering and Applied Sciences places significant emphasis on experiential learning, the goal of which is to offer students a greater understanding of their options as they decide on their post-UB careers, and increase their preparedness for entering the engineering profession. Experiential learning initiatives include internships, engineering intramurals, job shadowing, and senior capstone design projects.



Undergraduate Research

Undergraduate students in civil engineering can gain research experience under the mentorship of our faculty members. Participating in undergraduate research provides students with an inquiry-based learning opportunity and engages them as active learners in a laboratory setting.

Student Excellence



Adrienne Richardson, civil engineering senior, says there are many classes tailored to all aspects of civil engineering that are helping to prepare her to achieve her professional/educational goals following graduation. *"The civil engineering program at UB is a great fit for me because the curriculum is challenging but never too overwhelming, and the faculty in the program are always available to help and want to see students succeed,"* she says. Additionally, Richardson has been exposed to a large network of successful civil engineers through alumni and networking events on campus, as well as through her involvement in the American Society of Civil Engineers Club at UB.

World-Class Faculty

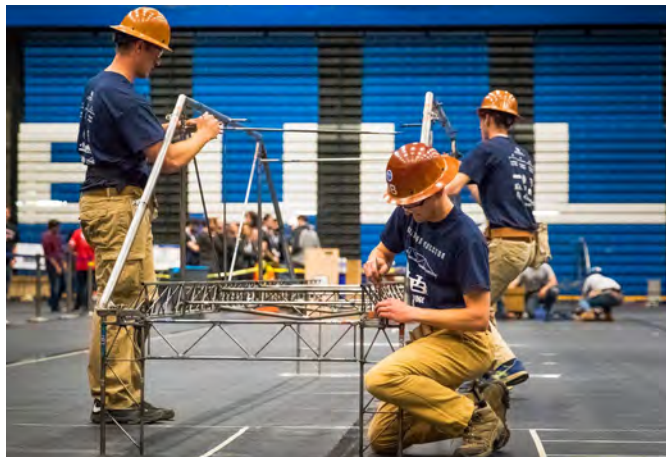


The department continues to enhance its academic strengths and research portfolio with the addition of nine new faculty members in the past two years in the areas of structures, geotechnics, transportation, and water resources and environmental engineering.

Assistant Professor **Teng Wu** joined CSEE in 2014 following the completion of his PhD in civil engineering at the University of Notre Dame. His research addresses the effects of service and extreme winds on the built environment, with an emphasis on bridges. He is building basic knowledge of wind effects using computational fluid dynamics, predicting the impact of wind hazards on constructed facilities, and developing wind-response mitigation strategies to improve safety and serviceability.

Student Clubs and Activities

Our students are engaged in a variety of campus-wide activities and organizations. Some of the more popular clubs for civil engineering students include the student chapter of the American Society of Civil Engineers, featuring the annual Steel Bridge and Concrete Canoe design teams, and Engineers for a Sustainable World. Involvement in these clubs enriches the academic experience and provides students with strong leadership opportunities, along with some great memories.



To apply, please visit admissions.buffalo.edu

Successful Alumni



Jaelyn Bronner, EIT, (BS, 2014) is pursuing her Master of Science in Civil Engineering with a focus in Geotechnical and Geoenvironmental

Engineering at the University of California, Davis. Her research interests are centered on the liquefaction potential of intermediate soils utilizing geotechnical centrifuge modeling. Bronner, who served as president of the UB chapter of the Society for Women Engineers, continues to be active with the organization, which aims to help women achieve their full potential in careers as engineers and leaders.



After receiving his degree at UB, **Tenzin Nyandak**, EIT, (BS, 2014) obtained an Advanced Masters in Structural Analysis of

Monuments and Historical Constructions through an Erasmus Mundus program held jointly at the Polytechnic University of Catalonia in Spain and the University of Minho in Portugal. In 2015, Nyandak was awarded the Robert Silman Fellowship for Preservation Engineering, which is granted annually to train a recent graduate in preservation engineering. Upon completion of the yearlong fellowship, Nyandak will work as a full-time structural engineer at Silman in NYC.

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