CIVIL AND ENVIRONMENTAL ENGINEERING

The Department of Civil and Environmental Engineering offers two ABET-accredited undergraduate degree programs, one leading to a B.S. Civil Engineering (BSCE) degree (http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/civil-engineering-bs/) and the other leading to a B.S. Geological Engineering (BSGLE) degree (http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/geological-engineering-bs/). The BSCE degree program includes two options, one in Construction Engineering and Management (CEM) (http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/civil-engineering-construction-engineering-management-bs/) and the other in Environmental Engineering (http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/civil-engineering-bs/civil-engineering-environmental-engineering-bs/).

Civil and environmental engineers are responsible for the sustainable design of facilities that protect the health and welfare of communities and the environment, while also ensuring society’s financial health. More specifically, they are responsible for the conception, design, and construction of public works such as:

- the highways, streets, and bridges that we walk, bike, and drive on
- the water systems and earthworks that treat the water we drink, manage the water we swim in and boat on, and protect us and our property from floodwaters
- the homes, schools, factories, theaters, and stadiums in which we live, learn, work, and play
- the airports, railways, waterways, and harbors that provide additional mobility for people and the materials they produce and consume
- the treatment and emission systems that ensure the safety of the air we breathe
- the recycling, reuse, and disposal systems used to minimize the production of and also provide for the containment of the solid and hazardous wastes we produce
- the production and transmission facilities for the electricity we use, including generation facilities for both conventional and renewable energy sources
- autonomous cars, trucks, and mass transport systems, providing safer travel with reduced traffic congestion, improved roadway capacity, reduced energy consumption and air emissions
- smart water infrastructure, including systems that will reduce water consumption, save energy, and improve community resiliency in the wake of natural and human-caused disasters
- intelligent buildings, including systems that reduce energy consumption, improve employee and student comfort, and allow for adaptation of structural systems to changing wind and seismic loads

Civil and environmental engineers are also responsible for the operation of these facilities, an aspect of the field that is being rapidly integrated into the Internet of Things with real-time “big data” collection systems for automated control. This makes it possible for society to rely on:

- construction engineering and management, environmental engineering, geological and geotechnical engineering, structural engineering, transportation engineering, and water resources engineering. Civil and environmental engineers perform their work in an interdisciplinary setting requiring strong written and verbal communication skills, understanding of professional and ethical obligations coupled with risk management and decision-making, and commitment to lifelong learning and professional licensure.

VISION

Develop and maintain a learning community that pursues new knowledge and understanding, and provides innovative and sustainable solutions to human and ecological needs.

MISSION OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING (BSCE) PROGRAM

Create, integrate, and transfer civil and environmental engineering knowledge and practice in the development of professionals, leaders, and citizens that help define and serve societal and environmental needs by applying this knowledge and practice in an effective and sustainable manner.

CIVIL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

Prepare BSCE graduates to contribute to their communities through the following career and professional accomplishments:

1. Design and construct both natural and built processes and systems to efficiently meet determined needs using technical knowledge; modern tools; design principles; ethical practice; and communication, leadership, and team skills.
2. Utilize measurement and analysis tools along with experimental data in investigating natural and built systems.
3. Understand and incorporate economic, environmental, political, social, safety, and global considerations in design, investigation, and construction of natural and built systems.
4. Engage in lifelong learning to keep pace with the continuous evolution of policies, procedures, technologies, and tools for engineering analysis, design, and decision making.
5. Serve others through participation in professional and/or civic activities and responsibilities.

DEGREES/MAJORS/CERTIFICATES

- Civil Engineering, B.S. (http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/civil-engineering-bs/)
- Geological Engineering, B.S. (http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/geological-engineering-bs/)

PEOPLE

PROFESSORS

William Likos (Chair)
Soyoung Ahn
Hussain Bahia
Steven Cramer
Awad Hanna  
Gregory W. Harrington  
James P. Hurley  
Steve P. Loheide II  
Katherine (Trina) McMahon  
Daniel Noguera  
David Noyce  
Jae Park  
Gustavo Parra-Montesinos  
Bin Ran  
Jeffrey Russell  
James Jay Schauer  
Chin H. Wu

**ASSOCIATE PROFESSORS**

Paul Block  
Dante Fratta  
Matthew Ginder-Vogel  
Jose Pincheira  
Christy Remucal  
James Tinjum

**ASSISTANT PROFESSORS**

Hannah Blum  
Jesse Hampton  
Andrea Hicks  
Pavana Prabhakar  
Nimish Pujara  
Mohan Qin  
Hiroki Sone  
Bu Wang  
Haoran Wei  
Daniel Wright  
Zhenhua Zhu

See also Civil and Environmental Engineering Faculty Directory (https://directory.engr.wisc.edu/cee/faculty/).

**RESOURCES AND SCHOLARSHIPS**

**FACILITIES**

Facilities available include modern and fully equipped laboratories for instruction and research in the following areas:

Environmental Engineering  
Fluid Mechanics  
Geoengineering  
Hydraulics  
Data Acquisition and Analysis  
Structures and Materials Testing  
Transportation Engineering  
Environmental Chemistry and Technology