CIVIL AND ENVIRONMENTAL ENGINEERING

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

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:

- 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

All of the above items require a core knowledge in mathematics, statistics, physics, chemistry, biology, geology, computer science and computer design tools, as well as breadth in the different civil and environmental engineering disciplines. These disciplines include 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 CIVIL AND ENVIRONMENTAL ENGINEERING PROGRAMS

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 AND ENVIRONMENTAL ENGINEERING PROGRAMS EDUCATIONAL OBJECTIVES

Prepare 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/)
- Environmental Engineering, B.S. (http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/environmental-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
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
Andrea Hicks
Jose Pincheira
Christy Remucal
James Tinjum

ASSISTANT PROFESSORS

Hannah Blum
Jesse Hampton
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