

# CIVIL AND ENVIRONMENTAL ENGINEERING: PROFESSIONAL, M.S.

This is a named option in the Civil and Environmental Engineering M.S. (<https://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/>) It is one year, face-to face coursework-based program.

The mission of the civil and environmental engineering program is to develop leaders in education, industry, and government who can use their acquired skills to improve society. The academic program provides a comprehensive framework of courses in the broad area of civil and environmental engineering with opportunities to develop specialized expertise. It also emphasizes the development of integrated teamwork abilities, communication, leadership, entrepreneurship, and creative research skills. Graduate study in the department offers an opportunity to take coursework in various areas of specialization. Areas include:

- *Construction engineering and management*: construction labor productivity management; integrated lean project delivery systems; risk management; advanced computer applications to construction; change management
- *Environmental science and engineering*: water supply; water quality; water treatment; wastewater treatment; solid and hazardous waste management; air pollution; biotechnology; alternative energy
- *Geological/geotechnical engineering*: geotechnical and geological engineering; geosynthetics; in-situ testing and engineering geophysics; recycled materials in sustainable construction
- *Structural engineering*: behavior, analysis and design of reinforced/prestressed concrete, steel, and wood structures; design for earthquake and wind loading; seismic rehabilitation
- *Transportation engineering*: highway and traffic engineering; intelligent transportation systems; connected and automated vehicles; transportation planning; infrastructure management; transportation safety; user comprehension and behavior; advanced driving- and micro-simulation; big data
- *Water resources engineering*: analysis, measurement, modeling of currents, flows, and waves in natural and constructed systems; surface and groundwater hydrology; hydraulic engineering; coastal engineering; sedimentation and transport processes; infrastructure impacts of extreme weather events; hydroecology; stream restoration