CIVIL AND ENVIRONMENTAL ENGINEERING, MS

The Department of Civil and Environmental Engineering (CEE) offers MS degrees with research (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/civil-environmental-engineering-research-ms/) and professional (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/civil-environmental-engineering-professional-ms/) named options. The research option is a two-year, research thesis-based program. The professional option is a one-year, face-to-face coursework program.

In addition, an online program in Civil & Environmental Engineering: Environmental Engineering MEng (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-meng/civil-environmental-engineering-environmental-engineering-meng/) is offered.

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 undertake advanced study and research in various areas of specialization including:

- **Construction engineering and management:** construction labor productivity management, integrated lean project delivery systems, risk management, advanced computer applications to construction, and change management
- **Environmental engineering:** water supply, water quality, water treatment, wastewater treatment, solid and hazardous waste management, air pollution, biotechnology, and alternative energy
- **Geo and pavement engineering:** geotechnical and geological engineering, pavement materials and design, asphalt binders and mixtures, 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, freight, infrastructure management, transportation safety, user comprehension and behavior, advanced driving- and micro-simulation, big data
- **Water resources/environmental fluid mechanics:** 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 and stream restoration

Students may also pursue studies in the broad fields of environmental engineering/science and systems analysis. Areas of specialization are organized into a constructed facilities division (including transportation engineering, structural engineering, construction engineering and management, pavement engineering, materials for constructed facilities, and geotechnical engineering) and an environmental engineering division (including geoenvironmental engineering, environmental fluid mechanics and water resources engineering, environmental science and technology, and environmental and water chemistry).

Degrees require a coordinated core program of courses, selected from CEE and other department/program offerings. Graduate degree programs closely associated with the department include engineering mechanics, human factors, environmental chemistry and technology, water resources management, geological engineering, land resources, and limnology and marine science.

In support of the instructional and research programs are laboratory facilities for structural engineering; highway materials; transportation systems; driving simulation and human factors; soil mechanics, geotechnical and geoenvironmental engineering; coastal and hydraulic engineering; environmental fluid mechanics; environmental engineering processes and engineering chemistry. Water resources engineering, environmental engineering, and water chemistry have additional research facilities in the Water Science and Engineering Laboratory on the shore of Lake Mendota. The Environmental Engineering Field Laboratory is located at the Nine-Springs Madison Metropolitan Wastewater Treatment Plant.

ADMISSIONS

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Students apply to the Master of Science in Civil and Environmental Engineering through one of the named options:

- Research (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/civil-environmental-engineering-research-ms/)
- Professional (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/civil-environmental-engineering-professional-ms/)

FUNDING

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

PROGRAM RESOURCES

Financial support is available through fellowships, project/program assistantships (PA), research assistantships (RA), and teaching assistantships (TA). Faculty will contact successful MS/PhD applicants directly regarding funding opportunities. Admission is not a guarantee of funding.

Students enrolled in the Professional MS named option and MEng (named option in Environmental Engineering) online programs are not eligible to receive tuition remission from graduate assistantship appointments at this institution.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	16 credits
Minimum Graduate Coursework Requirement	15 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).
Other Grade Requirements	n/a
Assessments and Examinations	Refer to specific named option: Research or Professional
Language Requirements	No language requirements.

REQUIRED COURSES

Select a Named Option (p. 2) for courses required.

NAMED OPTIONS

A named option is a formally documented sub-major within an academic major program. Named options appear on the transcript with degree conferral. Students pursuing the Master of Science in Civil and Environmental Engineering must select one of the following named options:

View as listView as grid

- **CIVIL AND ENVIRONMENTAL ENGINEERING: PROFESSIONAL, MS (HTTP://GUIDE.WISC.EDU/GRADUATE/CIVIL-ENVIRONMENTAL-ENGINEERING/CIVIL-ENVIRONMENTAL-ENGINEERING-MS/CIVIL-ENVIRONMENTAL-ENGINEERING-PROFESSIONAL-MS/)**
- **CIVIL AND ENVIRONMENTAL ENGINEERING: RESEARCH, MS (HTTP://GUIDE.WISC.EDU/GRADUATE/CIVIL-ENVIRONMENTAL-ENGINEERING/CIVIL-ENVIRONMENTAL-ENGINEERING-MS/CIVIL-ENVIRONMENTAL-ENGINEERING-RESEARCH-MS/)**

POLICIES

POLICIES

Students should refer to one of the named options for policy information:

- Research (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/civil-environmental-engineering-research-ms/) (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/civil-environmental-engineering-research-ms/)
- Professional (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms/civil-environmental-engineering-professional-ms/)

PROFESSIONAL DEVELOPMENT

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.

LEARNING OUTCOMES

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1. Demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
2. Demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
3. Apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.
4. Recognize and apply principles of ethical and professional conduct.

PEOPLE

PEOPLE

CIVIL AND ENVIRONMENTAL ENGINEERING

Professors Harrington (chair), Ahn, Hanna, Hurley, Li, Likos, Loheide, McMahon, Noguera, Noyce, Park, Parra-Montesinos, Ran, Remucal, Russell, Schauer, Wu; Associate Professors Block, Fratta, Ginder-Vogel, Hicks, Pincheira, Prabhakar, Sone, Tinjum, Wright; Assistant Professors Blum, Chen, Hampton, Pujara, Qin, Wang, Wei, Zhu; M.Eng Program Director Carlson. See also CEE faculty (http://directory.engr.wisc.edu/cee/faculty/).

GEOLOGICAL ENGINEERING

Professors Tinjum (Director) (Civil and Environmental Engineering), Feigl (Geoscience), Goodwin (Geoscience), Hard (Wisconsin Geological and Natural History Survey), Likos (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering), Tikoff (Geoscience), Wu (Civil and Environmental Engineering); Associate Professors Cardiff (Geoscience), Ferrier (Geoscience), Fratta (Civil and Environmental Engineering), Ginder-Vogel (Civil and Environmental Engineering), Hicks (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering), Zoet (Geoscience); Assistant Professors Hampton (Civil and Environmental Engineering), Golos (Geoscience), Zahasky (Geoscience). See also GLE faculty (https://engineering.wisc.edu/departments/civil-environmental-engineering/research/geological-engineering/).

ENVIRONMENTAL CHEMISTRY AND TECHNOLOGY

Professors Hurley (Civil and Environmental Engineering), Bertram (Chemistry), Bleam (Soil Science), Harrington (Civil and Environmental Engineering), Karthikeyan (Biological Systems Engineering), McMahon (Civil and Environmental Engineering/Bacteriology), Roden (Geoscience), Root (Chemical and Biological Engineering), Schauer (Civil and Environmental Engineering), Thompson (Biological Systems Engineering); Associate Professors Ginder-Vogel (director; Civil and Environmental Engineering), Remucal (Civil and Environmental Engineering), Whitman (Soil Science); Assistant Professors Anantharaman (Bacteriology), Majumder (Bacteriology), Qin (Civil and Environmental Engineering), Wei (Civil and Environmental Engineering). See also ECT Faculty (https://engineering.wisc.edu/departments/civil-environmental-engineering/research/environmental-chemistry-technology/).