Civil and Environmental Engineering

Administrative Unit: Civil and Environmental Engineering
College/School: College of Engineering
Admitting Plans: M.S., M.Eng., Ph.D.
Degrees Offered: M.S. in Civil and Environmental Engineering; M.S. in Geological Engineering; M.Eng. in Civil and Environmental Engineering; Ph.D. in Civil and Environmental Engineering
Minors and Certificates: Doctoral Minor in Civil and Environmental Engineering; Doctoral Minor in Geological Engineering
Named Options: Construction Engineering and Management (M.S.); Environmental Engineering (M.Eng.); Environmental Science and Engineering (M.S.); Geological/Geotechnical Engineering (M.S.); Structural Engineering (M.S.); Transportation Engineering (M.S.); Water Resources Engineering (M.S.)

The mission of the civil and environmental engineering program is to develop leaders in education, industry, government and entrepreneurship 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, and creative research skills. Graduate study in the department offers an opportunity to undertake advanced study and research in various areas of specialization. Areas include:

- **Construction engineering and management**: construction engineering and management, sustainable design and construction, and advanced construction and computer modeling
- **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, geological and geoenvironmental engineering, pavement materials and design, asphalt binders and mixtures, geosynthetics, in-situ testing and engineering geophysics, recycled materials in sustainable construction
- **Structural engineering**: structural analysis and design of wood, concrete, steel, and highway bridge structures; design for earthquake and wind loading; seismic rehabilitation
- **Transportation engineering**: highway and traffic engineering, intelligent transportation systems, transportation planning, freight, and infrastructure management, transportation safety, user comprehension and behavior, advanced driving and micro-simulation
- **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 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 highway materials; transportation systems; driving simulation and human factors; soil mechanics and geotechnical engineering; coastal and hydraulic engineering; environmental fluid mechanics; environmental engineering processes and engineering chemistry; structural engineering; geoenvironmental engineering, and geotechnical engineering research. 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.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Civil and Environmental Engineering, Doctoral Minor (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-doctoral-minor)
- Civil and Environmental Engineering, M.Eng. (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-meng)
- Civil and Environmental Engineering, M.S. (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-ms)
- Civil and Environmental Engineering, Ph.D. (http://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-phd)
- Geological Engineering, Doctoral Minor (http://guide.wisc.edu/graduate/civil-environmental-engineering/geological-engineering-doctoral-minor)
- Geological Engineering, M.S. (http://guide.wisc.edu/graduate/civil-environmental-engineering/geological-engineering-ms)
- Geological Engineering, Ph.D. (http://guide.wisc.edu/graduate/civil-environmental-engineering/geological-engineering-phd)

### PEOPLE

**Faculty**: Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (http://directory. engr.wisc.edu/cee/faculty/).

**Geological Engineering Faculty**: Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience),
Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (http://gle.wisc.edu/faculty-and-staff).