Program Description
As our society advances, development puts pressure on world resources and ecosystems. Environmental engineers help balance the impact of this development on our environment with solutions that remediate or prevent contamination of air, drinking water, soil and natural systems. The field of environmental engineering is rapidly advancing to encompass many of today’s greatest challenges, such as sustainability, carbon emissions and limited water resources.

Courses in Missouri University of Science and Technology’s environmental engineering graduate degree program focus on engineering analysis that incorporate the fundamental physical, biological and chemical characteristics of natural and engineered environmental systems, while putting these engineering solutions in the context of societal needs and the requirements of environmental laws.

Credit Hours to Complete: A total of 30 credit hours of coursework is required to complete this degree.

Course Length: 16 weeks (fall/spring); 8 weeks (summer)

Delivery Format: Courses are delivered over the Internet, via live streaming video; collaborative learning software includes WebEx and Blackboard; classes are archived online for review and easy access.

Course Management Software: Blackboard.

Application Deadlines:
Fall Semester - August
Spring Semester - December
Summer Session - May

Admission Requirements
Bachelor’s in engineering discipline from an approved program; student with non-engineering degrees (e.g. chemistry, physics, geology, or biology) will be considered, if deficiencies in mathematics, science and engineering are remedied. GPA ≥ 3.0; GRE V+Q ≥ 302 (1100 based on the previous scale), A ≥ 3.5; International requirement: TOEFL ≥ 550

Department Contact Information
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Dr. Glenn Morrison
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Geoenvironmental Engineering: This certificate program is designed to provide formalized education in the area of Geoenvironmental Engineering. You are required to take four courses (12 credit hours) to complete the certificate program. Credit earned in the certificate program may count toward your graduate degree. Contact the department for details.

Curriculum:* A minimum of two of the following geotechnical courses must be taken:
- CE 314: Geosynthetics in Engineering
- CE 315: Intermediate Soil Mechanics
- CE 329: Foundation Engineering II

A minimum of two of the following environmental courses must be taken from the following group:
- CE 360: Environmental Law and Regulations
- CE 361: Remediation of Contaminated Groundwater and Soil
- CE 362: Public Health Engineering
- CE 363: Solid Waste Management
- CE 366: Indoor Air Pollution or CE 368: Air Pollution Control

Course Descriptions:
Courses are taught on a rotating schedule (not available every semester).

CE 314: Geosynthetics In Engineering
Geotechnical principles are applied to design of geosynthetic systems for foundation support, earth retention, drainage, and disposal of hazardous conventional wastes. Geosynthetic testing and identification. Emphasis is on design of geosynthetic earth reinforcement, roadway stabilization, filters, and waste containment systems. Prerequisites: Cv Eng 215 with grade of “C” or better.

CE 315: Intermediate Soil Mechanics
General principles of soil mechanics and their applications, including mineralogy, soil structure, flow through porous media, shear strength, slope stability and consolidation. Prerequisites: Cv Eng 215 with grade of “C” or better.

CE 329: Foundation Engineering II
Classical earth pressure theories. Analysis of shallow and deep foundations to include bearing capacity and settlement of footings, rafts, piles, and drilled piers. Analysis of stability and design of retaining walls and anchored bulkheads. Prerequisites: Cv Eng 229 with a grade of “C” or better. (Co-listed with ArchEng 329)

CE 360: Environmental Law and Regulations
This course provides comprehensive coverage of environmental laws and regulations dealing with air, water, wastewater, and other media. The primary focus is permitting, reporting, and compliance protocols. The course topics include U.S. and international legal systems and judicial processes, liability, enforcement, Clean Air Act, Clean Water Act (NPDES) permitting, Safe Drinking Water Act, OSGA, TSCA, RCRA, AND CERCLA. Case studies will be emphasized.

CE 361: Remediation Of Contaminated Groundwater and Soil
Course covers current in-situ and ex-situ remediation technologies. Current literature and case studies are utilized to provide the focus for class discussions and projects. Prerequisites: Cv Eng 265 or graduate standing.

CE 362: Public Health Engineering
A comprehensive course dealing with the environmental aspects of public health. Prerequisites: Cv Eng 261 with grade of “C” or better.

CE 363: Solid Waste Management
A systematic study of the sources, amounts and characteristics of solid wastes and methods used for their collection, reclamation, and ultimate disposal. Prerequisites: Cv Eng 261 with grade of “C” or better; or graduate standing.

CE 366: Indoor Air Pollution
By developing a practical understanding of indoor air pollution sources, physics, chemistry and consequences, students will learn how radon, cigarette smoke, VOCs from furnishings, and so forth affect indoor air quality and apply engineering analyses to specify ventilation rates, choose furnishings and minimize occupant exposure to pollutants. Prerequisite: Cv Eng 261 or Mech Eng 371 or Graduate Status. (Co-listed with Env Eng 366 and Arch Eng 366)

CE 368: Air Pollution Control Methods
Study of the design principles and application of the state-of-the-art control techniques to gaseous and particulate emissions from fossil fuel combustion, industrial and transportation sources. Prerequisite: Cv Eng 230; or graduate standing. (Co-listed with Env En 368)

For more information —
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