Civil Engineering (MS)
Distance Graduate Degree Program
Department of Civil, Architectural and Environmental Engineering

Program Description
Civil engineers are problem solvers, applying the latest in high-tech equipment and sophisticated procedures to address challenges concerning our environment and infrastructure. Because of the broad nature of civil engineering, Missouri University of Science and Technology offers the following areas of study:

Environmental Engineering – courses can be tailored to fit the interest of the student, with strong courses in groundwater, soil remediation, air pollution control and wastewater treatment.

Geotechnical Engineering – courses include soil properties, foundation analysis and design, embankments, structures, earth dams, modeling, soil dynamics, earthquake engineering.

Structural Engineering – general studies include reinforced concrete, cold-formed steel, fiber reinforced polymer composites, high performance concrete, seismic behavior of structures, damage detection.

Credit Hours to Complete: This is a non-thesis degree program and requires 30 credit hours of coursework to complete.

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.

Admission Requirements
Bachelor's degree in an engineering discipline from an accredited program; GPA ≥3.0; GRE V+Q ≥ 302 (1100 based on old scale), A ≥ 4.0; International requirement: TOEFL ≥ 88 iBT. Students with non-civil engineering degrees may be required to take additional courses to prepare them for their advanced studies. In some cases, students with non-engineering degrees (e.g., chemistry, physics, geology, or biology) will be considered if deficiencies in mathematics, science and engineering are remedied.

Department Contact Information
Karen White
Graduate Program Coordinator
119 Butler-Carlton Hall
Rolla, MO 65409-6549
Phone: 573-341-4470
Fax: 573-341-4729
Email: WhiteK@mst.edu
Web: http://civil.mst.edu

Dr. Glenn Morrison
Associate Professor of Civil, Architectural and Environmental Engineering
Missouri University of Science and Technology
221 Butler-Carlton Hall
Rolla, MO 65409-6549
Phone: 573-341-4470
Email: gcm@mst.edu
Web: http://civil.mst.edu
Contemporary Structural Engineering
This certificate program is designed to provide formalized education in the area of Contemporary Structural Engineering. Students have the option of taking courses that provide a more classical approach to the study of structural engineering and engineering mechanics. Courses in this certificate program cover analysis and design of structural systems.

Curriculum:* 
One of the following courses is required:
- CIV ENG 319 Applied Mechanics in Structural Engineering
- CIV ENG 320 Structural Analysis II
- CIV ENG 323 Classical & Matrix Methods of Structural Analysis

One of the following courses is required:
- CIV ENG 326 Advanced Steel Design
- CIV ENG 327 Advanced Concrete Design
- CIV ENG 328 Prestressed Concrete Design

Two of the following courses are required:
- CIV ENG 375 Low-Rise Building Analysis and Design
- CIV ENG 424 Structural Dynamic & Earthquake Engineering
- CIV ENG 425 Finite Element Application in Structural Design
- CIV ENG 426 Advanced Design in Steel and Lightweight Structures
- AERO ENG/MECH ENG/ENG MGT 334 Stability of Engineering Structures
- AERO ENG/MECH ENG/ENG MGT 431 Theory of Plates

Geoenvironmental Engineering
This certificate program is designed to provide formalized education in the area of Geoenvironmental Engineering.

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

A minimum of two of the following environmental courses must be taken from the following group:
- CIV ENG 360 Environmental Law and Regulations
- CIV ENG 361 Remediation of Contaminated Groundwater and Soil
- CIV ENG 362 Public Health Engineering
- CIV ENG 363 Solid Waste Management
- CIV ENG 380 Water Resources and Wastewater Engineering

Infrastructure Renewal
This certificate program is designed to provide formalized education in the area of Infrastructure Renewal and Emerging Technologies for Construction. Students will learn the latest developments in assessment and repair/rehabilitation techniques and emerging technologies using an interdisciplinary approach. Particular emphasis is placed on composite materials.

Curriculum:* 
Two of the following courses are required:
- CIV ENG 374/ArchE 374 Infrastructure Strengthening with Composites
- AERO ENG 311/MECH ENG 382/ENG MGT 381 Introduction to Composite Materials and Structures
- CIV ENG 314 Geosynthetics in Engineering

One of the following courses is required:
- CIV ENG 326 Advanced Steel Design
- CIV ENG 327 Advanced Concrete Design
- CIV ENG 328 Prestressed Concrete Design

One of the following courses is required:
- CIV ENG 329 Foundation Engineering II
- CIV ENG 345 Construction Methods
- CIV ENG 424 Structural Dynamics and Earthquake Engineering
- AERO ENG/MECH ENG/ENG MGT 484 Analysis of Laminated Composite Structures
Project Engineering and Construction Management
This certificate program is designed to provide formalized education in the area of Project Engineering and Construction Management. The certificate program also aims to equip students with a set of tools that will allow them to achieve international standards in the management area, to successfully manage projects and human resources, and to analyze, evaluate and improve systems.

Curriculum:*  
Two of the following civil engineering courses are required:  
- CIV ENG 345 Construction Management  
- CIV ENG 349 Engineering Construction Contract Specifications  
- CIV ENG 442 Construction Administration Planning and Control  
- CIV ENG 445 Advanced Construction Engineering  

Two of the following engineering management courses are required:  
- ENG MGT 308 Economic Decision Analysis  
- ENG MGT 314 Management for Engineers  
- ENG MGT 361 Project Management  
- ENG MGT 362 Case Studies in Project Management  
- ENG MGT/SYS ENG 368 Systems Engineering and Analysis I  
- ENG MGT 461 Advanced Project Management  

Admission Requirements  
The civil engineering graduate certificate programs are open to all individuals who hold a bachelor's, master's or Ph.D. degree and who have a minimum of 12 months of post-B.S. professional employment experience. The GRE is not required to enter a certificate program.  

In order to receive a graduate certificate, the student must have an average cumulative grade of 3.0 or better in the four core courses.  

Students are admitted to the certificate program on a non-matriculated basis; however, if students complete the four-course sequence with a grade of B or better in each of the courses taken, they can enroll in Missouri S&T's master's degree program in civil engineering, if they so choose. The certificate credits taken by a student admitted to the master's program will count toward their master's degree. Students who do not have all of the prerequisite courses necessary to take the course in the certificate program can take “bridge” courses at either the graduate or undergraduate level to prepare for the formal certificate courses.  

A student is given three years to complete the certificate program, so long as he/she maintains a B average in the courses taken.

Department Contact Information

Karen White  
Graduate Program Coordinator  
119 Butler-Carlton Hall  
Rolla, MO 65409-6549  
Phone: 573-341-4470  
Fax: 573-341-4729  
Email: WhiteK@mst.edu  
Web: http://civil.mst.edu

Dr. Glenn Morrison  
Associate Professor of Civil, Architectural and Environmental Engineering  
221 Butler-Carlton Hall  
Rolla, MO 65409-6549  
Phone: 573-341-4470  
Email: gcm@mst.edu  
Web: http://civil.mst.edu

*Curriculum is subject to change. Please contact the department for up-to-date information on courses. Other courses approved by the faculty may be substituted for any of the above listed courses on a case-by-case basis. The assistant chair for distance education must approve the substitution prior to enrolling in the course.