

# M.S. CIVIL ENGINEERING

UNIVERSITY OF THE  
DISTRICT OF COLUMBIA  
SCHOOL OF ENGINEERING AND APPLIED SCIENCES



## MASTER OF SCIENCE IN CIVIL ENGINEERING

The Department of Civil Engineering offers a high-quality graduate program leading to the degree of Master of Science in Civil Engineering (MSCE).

The MSCE is designed to meet the needs of working professionals in the greater Washington, D.C., metropolitan area and full-time graduate students.

The mission of the MSCE graduate program is to meet the advanced Civil Engineering educational needs of recent graduates of undergraduate Civil Engineering, practicing engineers, and those non-engineering professionals wishing to redirect their career paths.

Graduates of the program possess the following attributes or educational outcomes:

- Knowledge and skills in Civil Engineering and related fields significantly beyond the baccalaureate level.
- Ability to independently conduct research or a significant practice-oriented project in Civil Engineering.
- Ability to communicate their ideas and results in written, oral, and graphical forms, and develop attitude for lifelong learning.

### MSCE Program Requirements - 30 Credits

The program offers both thesis (6 credit thesis) and non-thesis (3 credit project) options.

Course Category	Thesis Option	Non-Thesis Option
Core Courses	6	6
Technical Elective	18	21
Master's Thesis	6	-
Master's Project	-	3
Total Credits	30	30

Specializations are offered in  
Geotechnical and Transportation Engineering  
Water and Environmental Engineering



The MSCE offers students the opportunity to develop a more fundamental and complete understanding of the principles that govern their field, including current design methodology and technical knowledge, and skills to research and develop new sustainable design solutions in the Civil Engineering field for the 21st Century.

Students are encouraged to be innovative and imaginative in their quest for recognizing, stating, analyzing, and solving engineering problems.

### Grant-Funded Research Opportunities

The Civil Engineering graduate students can work with faculty in grant-funded research, and also have the opportunity to serve as teaching assistants for the School of Engineering and Applied Sciences, as well as other schools at UDC.

For more information about earning an MS in Civil Engineering, visit [www.udc.edu/seas](http://www.udc.edu/seas) or contact:

Department Chair, Dr. Pradeep Behera, PE  
202-274-6186, [pbehera@udc.edu](mailto:pbehera@udc.edu)

Program Director, Dr. Lei Wang  
202-274-6327, [lei.wang@udc.edu](mailto:lei.wang@udc.edu)

Department Office, Ms. Veronica Williams  
202-274-6286, [vwilliams@udc.edu](mailto:vwilliams@udc.edu)

## MSCE – General Master's Degree

### Core Courses

Select two to three core courses from the following:

- CVEN 501 Advanced Engineering Mathematics (3)
- CVEN 502 Risk and Reliability Methods in Engineering (3)
- CVEN 503 Optimization Methods and Advanced Statistics (3)
- CVEN 505 GIS Applications in Civil & Environmental Engineering (3)
- ELEC 507 Probability and Random Processes (3)
- WTRM 505 GIS for Water Resources Management

### Geotechnical and Transportation Concentration

#### Core Courses

Select two to three courses from the following:

- CVEN 501 Advanced Engineering Mathematics (3)
- CVEN 502 Risk and Reliability Methods in Engineering (3)
- CVEN 503 Optimization Methods and Advanced Statistics (3)
- CVEN 505 GIS Applications in Civil and Environmental Engineering (3)
- CVEN 535 Advanced Foundation Engineering (3)
- ELEC 507 Probability and Random Processes (3)
- WTRM 505 GIS for Water Resources Management (3)

### Water and Environmental Engineering Concentration

#### Core Courses

Select two to three Courses from the following:

- CVEN 501 Advanced Engineering Mathematics (3)
- CVEN 502 Risk and Reliability Methods in Engineering (3)
- CVEN 503 Optimization Methods and Advanced Statistics (3)
- CVEN 505 GIS Applications in Civil and Environmental Engineering (3)
- ELEC 507 Probability and Random Processes (3)
- WTRM 505 GIS for Water Resources Management (3)

## Technical Elective Courses

Select five to seven courses from the following:

- BGMT 506 Management Theory and Practice (3)
- BGMT 509 System Approach and Project Management (3)
- CVEN 521 Modeling Methods in Water Resources Engineering (3)
- CVEN 522 (3Cr) Advanced Engineering Hydrology (3)
- CVEN 523 Advanced Urban Stormwater Management (3)
- CVEN 524 Open Channel Hydraulics (3)
- CVEN 525 Water and Wastewater Engineering (3)
- CVEN 526 Water and Environmental Policy Development (3)
- CVEN 527 Principles of Environmental Engineering and Science (3)
- CVEN 528 Water and Wastewater Treatment Processes (3)
- CVEN 529 Advanced Topics in Water and Env. Engineering (3)
- CVEN 542 Advanced Water resources Engineering (3)
- CVEN 546 Environmental Engineering and Science (3)
- CVEN 562 Reliability and Optimization Methods in Engineering (3)
- CVEN 563 Sensing and Data Analytics for Infrastructure Systems (3)
- CVEN 590 Special Studies in Civil Engineering (3)
- CVEN 625 Water Resources System Analysis (3)
- WTRM 500 Water Quality Assessment Monitoring & Treatment (3)
- WTRM 601 Water Quality Modeling (3)

## FACULTY

### DEPARTMENT OF CIVIL ENGINEERING

The faculty values teaching, research, and mentoring, and continues to enhance academic strengths and research. MSCE is supported by the following faculty.

#### **Hossain Azam, Ph.D., P.E.**

Experimental and Modeling Based Water and Wastewater (Water Resources Engineering, Urban Water Systems, Storm Water Management, Non-Point Source Pollution, Climate Change. Municipal & Industrial) Treatment, Solid Waste Management with Leachate Treatment, Water-Energy-Food-Climate Nexus, Environmental Chemistry and Microbiology, Groundwater/Sediment Remediation, Resources Recovery, Environmental Engineering Education.

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#### **Pradeep Behera, Ph.D., P.E., D.WRE** (Department Chair)

Water Resources Engineering, Urban Water Systems, Storm Water Management, Non-Point Source Pollution, Climate Change.

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#### **Bryan Higgs, Ph.D.**

Psychophysiological Driver Behavior, Transportation Network Vulnerability and Optimization, Travel Demand Modeling, Multi-level Multi-Objective Game Theory.

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#### **Lei Wang, Ph.D., P.E.**

Geotechnical Risk and Reliability, Infrastructure Robustness and Resilience, Supported Excavation and Tunneling, Reliability-Based Geotechnical Design and LRFD Calibration, Earthen Levees and Dams, Sustainable Civil Engineering Materials, Numerical and Centrifuge Modeling, Soil Liquefaction and Geotechnical Earthquake Engineering, Foundation Engineering.

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#### **Ahmet Zeytinci, Ph.D., P.E., Fellow-ASCE, Fellow-NSPE**

Structural Engineering, Structural Dynamics, Earthquake Engineering, Structural Analysis and Design, Engineering Education, Engineering License Exams.

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