MASTER OF SCIENCE IN THE FIELD OF CIVIL AND ENVIRONMENTAL ENGINEERING

The master of science program in civil and environmental engineering is designed to provide students with in-depth knowledge and training in various areas of specializations within civil and environmental engineering. Environmental engineering students use one of the world’s largest wastewater treatment plants as a real-world laboratory to improve the water quality of the Potomac River and the Chesapeake Bay watershed using advanced treatment technologies with reduced energy footprint, production of renewable energy, and resource recovery from the waste. Geotechnical and Structural engineering students study earthquake engineering and extreme event design of civil infrastructure systems on a state-of-the-art, six-degrees-of-freedom earthquake simulator. Transportation engineering students learn about vehicular and pedestrian traffic dynamics at GW’s Traffic and Networks Research Laboratory. Water resources engineering students learn about modeling of land surface and land-atmosphere interaction and exchange processes by utilizing innovative remote sensing, optimization and numerical modeling techniques.

Specific admission requirements are shown on the Graduate Program Finder. (http://www.gwu.edu/all-graduate-programs)

Visit the program website (https://www.cee.seas.gwu.edu/degree-programs) for additional program information.

REQUIREMENTS

The following requirements must be fulfilled: Non-thesis option—33 credits; thesis option—30 credits, including 6 credits of thesis. In either option, the student must select one focus area from below and complete the required 9 credits of courses in that area. The remaining credits are selected by the student in consultation with a faculty advisor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CE 6503</td>
<td>Principles of Environmental Engineering</td>
<td></td>
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<tr>
<td>CE 6609</td>
<td>Numerical Methods in Environmental and Water Resources</td>
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Geotechnical engineering:

- CE 6210: Introduction to Finite Element Analysis
- CE 6402: Theoretical Geomechanics
- CE 6605: Ground Water and Seepage

Structural engineering:

- CE 6201: Advanced Strength of Materials
- CE 6202: Methods of Structural Analysis
- CE 6210: Introduction to Finite Element Analysis

Transportation safety engineering:

- CE 6102: Application of Probability Methods in Civil Engineering
- CE 6721: Traffic Engineering and Highway Safety
- CE 6722: Intelligent Transportation Systems

Water resources engineering:

- CE 6601: Open Channel Flow
- CE 6604: Advanced Hydrology
- CE 6609: Numerical Methods in Environmental and Water Resources

**Required of students who have selected the thesis option**

- CE 6998: Thesis Research
- CE 6999: Thesis Research

Students should consult with the advisor concerning their program of study.