CIVIL AND ENVIRONMENTAL ENGINEERING, MASTER OF SCIENCE (M.S.)

Students are required to complete 30 credits within one of the seven specializations. The M.S. degree program offers a thesis option and very rarely a non-thesis option. Applicants who do not wish to complete a thesis are encouraged to consider the Professional Master of Engineering (ENPM) degree instead: http://www.gradschool.umd.edu/catalog/programs/enpm.htm

<table>
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<tr>
<th>Specialization Requirements (select one)</th>
<th>Credits</th>
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<td>Total Credits</td>
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1. Environmental
- ENCE650 Process Dynamics in Environmental Systems
- ENCE651 Chemistry of Natural Waters
- ENCE652 Microbiological Principles of Environmental Engineering

2. Civil Systems
- ENSE621 Systems Concepts, Issues, and Processes
- or ENSE622 Systems Requirements, Design and Trade-Off Analysis
- ENCE603 Management Science Applications in Engineering
- or ENCE677 OR Models for Transportation Systems Analysis
- ENCE688 Advanced Topics in Civil Engineering (ENCE688A Sensing and Systems Control)

3. Geotechnical
All courses approved by advisor

4. Project Management
- ENCE661 Project Cost Accounting and Finance
- ENCE662 Introduction to Project Management
- ENCE664 Legal Aspects of Engineering Design and Construction
- ENCE665 Management of Project Teams
- ENCE627 Project Risk Management

5. Structures
All courses approved by advisor

6. Transportation
All courses approved by advisor

7. Water Resources
- ENCE431 Hydrologic Engineering
- ENCE530 Environmental and Water Resource Systems I

**THESIS OPTION:**
- At least 24 credits of coursework are required beyond the B.S. degree, including a minimum of 18 credits at the 600 level or above.
- In addition, six credits of ENCE799 are required.

**NON-THESIS OPTION:**
- At least 30 credits of coursework are required beyond the B.S. degree, including a minimum of 24 credits at the 600 level or above.
- In addition, students are required to complete a scholarly paper