

CIVIL AND ENVIRONMENTAL ENGINEERING M.S.

All students must meet the Requirements for the Master's Degree (<http://catalogue.uvm.edu/graduate/degreerequirements/requirementsforthemastersdegree/>)

OVERVIEW

A graduate program in Civil and Environmental Engineering (CEE) that leads to the master of science degree is offered. The curricular and research programs emphasize engineering related to environmental and hydrological processes, sustainable transportation systems, materials, and geotechnical, geoenvironmental and structural engineering.

Research in the department addresses critical issues facing the world related to sustainability and energy; infrastructure systems; climate change, hazard mitigation and adaptation; and environmental and public health. A wide range of research methods are employed from state-of-the-art laboratory and field testing to sensing to computational modeling to artificial intelligence. Example projects include groundwater contamination modeling and remediation, environmental restoration and ecological engineering, hydrological processes, air pollution related health effects, sustainable materials, soil and structural dynamics, geo-energy, and sustainable transportation systems.

CEE graduate students can concurrently pursue certificates of graduate study in Complex Systems, Ecological Economics, and Community Resilience & Planning, among others.

SPECIFIC REQUIREMENTS

Requirements for Admission to Graduate Studies for the Degree of Master of Science

All applicants must have an undergraduate degree from a recognized university. A B.S. in engineering is preferred, but applicants with a B.S. in 1 of the sciences are often accepted. The latter, however, should have a minimum of the following mathematics and science course work prior to admission: calculus through differential equations (UVM's MATH 271 equivalent), calculus-based physics (UVM's PHYS 031 equivalent), and chemistry (UVM's CHEM 031 equivalent). Applicants without a B.S. degree in civil or environmental engineering may be asked to complete additional undergraduate coursework of up to 9 credits. Specific course work may be required of those who lack a sufficiently strong engineering background. Satisfactory scores on the Graduate Record Examination (GRE) general are also required. GRE is waived for graduates of the University of Vermont. International students whose native language is not English or who have not received their education in English are required to submit satisfactory results from the TOEFL, IELTS or DuoLingo examination.

Minimum Degree Requirements

The requirements for advancement to candidacy are as follows:

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| THESIS OPTION | |
| Total Minimum Credits (including 6-9 credits of CE 391) | 30 |
| Oral Comprehensive Examination | |
| Completion and Defense of a Thesis | |
| NON-THESIS OPTION #1 | |
| Total Minimum Credits (including 3-6 credits of CE 392) | 30 |
| Oral Comprehensive Examination | |
| Completion of a Research Report | |
| NON-THESIS OPTION #2 | |
| Total Minimum Credits (Restricted to Course Credits Only) | 30 |
| Written Comprehensive Examination | |

Students must declare which option they intend to pursue at the beginning of their program, any changes must be done in coordination with the academic advisor and Graduate Program Director.

All MS students must complete a minimum of 6 credits in advanced statistics, mathematics or numerical/computational methods, and a minimum of 9 credits in Civil and Environmental Engineering (CE) coursework.

Comprehensive Examination

A comprehensive examination is required of all M.S. students. For thesis option students this generally takes the form of an oral examination with the Studies Committee and often focuses around the basic principles behind the thesis research. This should generally take place in the semester preceding the thesis defense.

For non-thesis option students, the required format is either a written report or a written examination consisting of 3 topics related to the student's course of study. This usually takes place in the last semester of the program.

The examination may be retaken once if the student does not pass it on the first attempt.

Requirements for Advancement to Candidacy for the Degree of Master of Science

Specific course work may be required of those who lack a sufficiently strong engineering background.