CIVIL ENGINEERING (CAPITAL)

Degree Requirements

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (https://gradschool.psu.edu/graduate-education-policies/)

All graduate students in Civil Engineering are required to adhere to the requirements of the Graduate School, as found in the Graduate Degree Programs Bulletin. The requirements of the Graduate School, however, are minimum requirements and the policies, procedures, and regulations listed below are additional and more specific for graduate students pursuing the M.S. in Civil Engineering degree. Advisers will call pertinent regulations to the attention of their advisees, but it should be understood that it is the student's personal responsibility to see that all requirements are satisfied.

The M.S. CE program at PSH is structured to take full advantage of the specialty areas of expertise of the CE Graduate Faculty. The M.S. degree with the thesis track requires 31 credits at the 400, 500, 600, or 800 level, including 24 course credits with at least 12 credits at the 500 level, one colloquium credit (CE 590), and six thesis credits (CE 600 or CE 610). The thesis must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School, and the student must pass a thesis defense.

The M.S. degree with the non-thesis track also requires 31 credits at the 400, 500, or 800 level, including 27 course credits with at least 15 credits at the 500 level, one colloquium credit (CE 590), and three research/paper credits (ENGR 594).

All M.S. CE students are required to take an advanced math or statistics course (EMCH 524A or STAT 500), and EMCH 500 or CE 437, and colloquium (CE 590). Students will take 12 (thesis) or 15 (non-thesis) credits of civil engineering courses, selected from offerings in structural, construction, transportation, water resources, and environmental with 9 (thesis) or 12 (non-thesis) credits at the 500-level.

Elective Courses. Students will take six (6) additional elective credits at either the 400- or 500-level. These electives may be taken from civil engineering courses or courses offered by other departments that meet the objective of the M.S. CE degree. The student can work with their adviser to select courses that either focus on a specific area of civil engineering or that provide a robust in-depth background of multiple areas of civil engineering. A maximum of four 400-level courses (12 credits) may be taken for the M.S. CE degree.

Culminating Experience. For a thesis, original research, requiring at least two semesters of work (up to 6 credits), is expected. The work should be an in-depth investigation intended to extend the state of knowledge in a specialty area. The thesis must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School, and the student must pass a thesis defense. For the non-thesis track, a scholarly paper is required while the student is enrolled in ENGR 594. The paper should be an inquiry in a specialty area. The paper must be accepted by the advisers and/or committee members, the head of the graduate program, and the student must pass the paper defense.

Additional Requirements. A maximum of three credits of independent study (CE 596) may be applied towards the M.S. CE degree program, but the undergraduate individual study course (CE 496) will not count towards program credit requirements.

All students are expected to complete one credit of colloquium (CE 590) during the first two semesters of study. Degree requirements must be completed during a six-year period.

Penn State Harrisburg's M.S. CE program is distinct and independent of the M.S. CE program offered at the University Park campus.

Environmental Option

Code	Title	Credits
Core Courses		
EMCH 524A	Mathematical Methods in Engineering	3
or STAT 500	Applied Statistics	
EMCH 500	Solid Mechanics	3
or CE 437	Engineering Materials for Sustainability	
Required Environmental Option Courses		
ENVE 591	Research Methods in Environmental Engineering	1
ENVE 569	Environmental Risk Assessment	3
Select 3 credits of environmental chemistry or biology from the following list:		3
CE 570	Environmental Aquatic Chemistry	
ENVE 540	Biodegradation and Bioremediation	
ENVE 550	Chemical Fate and Transport	
Select 3 credits of design engineering in environmental and water resources:		3
ENVE 411	Water Supply and Pollution Control	
ENVE 415	Hydrology	
ENVE 417	Hydraulic Design	
CE 462	Open Channel Hydraulics	
CE 555	Groundwater Hydrology: Analysis and Modeling	
CE 571	Physical-Chemical Treatment Processes	
CE 572	Biological Treatment Processes	
Total Credits		**16**