

Civil Engineering, M.S.C.E.

Curriculum in Masters of Science in Civil Engineering

A candidate for the M.S. degree in civil engineering must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Wadsworth Department of Civil and Environmental Engineering.

Program Requirements

All M.S. degree candidates are required to perform research and follow a planned program of study. The student's research advisor, in conjunction with the student's Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student's needs. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their career.

Curriculum Requirements

Code	Title	Hours
A minimum cumulative GPA of 3.0 is required in all courses		
Course Requirements *		
A minimum of 60% of courses must be from 500 level or above		
A minimum cumulative GPA of 3.0 is required in all coursework used for degree requirements		
Plan of Study		
Any CE courses 500-795		15
Select the following based on degree path:		9
Additional coursework includes any AEM, AGBI, BIOC, BIOL, BIOM, BIOS, BMEG, CE, CHE, CHEM, CPE, CS, EE, ENVE, ENVP, GEOL, IENG, IH&S, MAE, MATH, MINE, PNGE, PHYS, SAFM, SENG, STAT, or WMAN courses 400-795, as approved by the student's AEC		
Complete 1 of the following options:		6
Thesis Option		
CE 697	Research (6 hours)	
Final Oral or Written Examination		
Thesis		
Problem Report Option		
Complete 3 additional hours of CE courses 500-795		
CE 697	Research (3 hours)	
Final Oral or Written Examination		
Formal written report or professional report/paper		
Coursework Option **		
Complete 6 additional hours of CE courses 500-795		
Final Oral or Written Examination		
Total Hours		30

*

Students who do not hold a baccalaureate degree in civil engineering are required to take a set of undergraduate civil engineering courses above and beyond the minimum coursework requirements.

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Although rarely permitted, this option is open to students with practical engineering experience or those who have demonstrated an ability to organize and develop a project and write a technical report. Approval to pursue this option must be obtained from the student's AEC, the graduate program coordinator, and the department chairperson.

Final Examination

M.S. students following the thesis or problem report option must prepare a written research proposal. The proposal must be approved by the student's AEC at least one semester prior to the final oral examination.

All students, regardless of option, are required to pass a final oral or written examination, administered by their AEC, covering the thesis or problem report and/or related course material.

Accelerated Program

- BSCE Civil Engineering and MSCE Civil Engineering (p. 2)

Accelerated Bachelor's/Master's in Civil Engineering

Students must fulfill all degree requirements for the B.S.C.E. in Civil Engineering and all the requirements of the M.S.C.E. in Civil Engineering. Students must also meet all the requirements of the ABM.

ABM REQUIREMENTS

Code	Title	Hours
Undergraduate Coursework		111
Shared Bachelor's/Master's Coursework		12
Graduate Coursework		18
Total Hours		141

SHARED COURSEWORK CURRICULUM REQUIREMENTS

Code	Title	Hours
Courses completed must be at the 400 or 500 level. MS option will dictate number of courses required at the 500 level.		
See BSCE and MSCE for list of elective course options		
Courses:		
CE Open Elective		3
CE Open Elective		3
CE Open Elective		3
CE Open Elective		3
Total Hours		12

SUGGESTED PLAN OF STUDY

First Year

Fall	Hours	Spring	Hours
MATH 155 (GEF 3)		4 MATH 156 (GEF 8)	4
ENGR 101		2 ENGR 102	3
ENGR 191		1 PHYS 111 & 111L (GEF 8)	4
CHEM 115 & 115L (GEF 2)		4 GEF 6	3
ENGL 101 (GEF 1)		3 GEF 7	3
GEF 5		3	
		17	17

Second Year

Fall	Hours	Spring	Hours
MAE 241		3 MAE 243	3
MATH 251		4 MAE 242	3
CE 210 & 210L		3 MATH 261	4
CE 201		1 STAT 215	3
ENGL 102 (GEF 1)		3 CE 332	3
Select one of the following (GEF 8):		4	
BIOL 115 & 115L			
GEOL 101 & 101L			
		18	16

Third Year

Fall	Hours	Spring	Hours
CE 321		3 CE 351 & 351L	4
CE 347 & 347L		4 CE 301	1
CE 361 & 361L		4 CE Open Elective	3
ECON 201 (GEF 4)		3 ENGR/MATH/Science Elective	3
WRIT 305		3 CE Design Elective	3
		17	14

Fourth Year

Fall	Hours	Spring	Hours
CE Design Elective		3 CE Open Elective [†]	3
Two CE Open Electives [†]		6 CE 479	3
IENG 377		3 ENGR/MATH/Science Elective	3
		CE Open Elective [†]	3
		12	12

Fifth Year

Fall	Hours	Spring	Hours
Elective		3 Elective	3
Elective		3 Elective	3
CE 697 (or Elective)		3 CE 697 (or Elective)	3
		9	9

Total credit hours: 141

†

Indicates courses that will be shared with the MS requirements

Major Learning Outcomes

CIVIL ENGINEERING

Program Objectives

- Have the ability to work on multidisciplinary teams, have high technical competence, and have the ability to meet present and future challenges in a specialty area of civil and environmental engineering
- Have the ability to effectively plan and execute scientific research or other high-level investigations using the most current methods and techniques in the civil and environmental engineering fields
- Have the ability to effectively communicate the results of their research or investigations through writing and oral presentations
- Have the ability to contribute to the body of engineering knowledge and/or to economic growth by developing the science, the materials, and the technology necessary to deliver vital infrastructure services in the most cost effective manner while protecting the health, safety, and welfare of human society

Program Outcomes

- Graduates will have an ability to function on teams involving multiple civil engineering specialties.
- Graduates will have an ability to apply advanced methodologies in their specialty area.
- Graduates will have an ability to effectively communicate technical information.
- Graduates will have an ability to design and conduct experiments, analyze and interpret data, and develop recommendations.
- Graduates will have an understanding of professional and ethical responsibility.
- Graduates will have an ability to understand the impact of engineering solutions in global and societal context.
- Graduates will have a recognition of the need to engage in life-long learning.
- Graduates will have an ability to use contemporary techniques, skills, and tools necessary for engineering practice in education, industry, and/or government.

Student Learning Outcomes

- Graduates will meet the academic standards required by WVU for those in graduate school while completing courses pertinent to their specialty area and as specified in their plan of study.
- Graduates will conduct experimental or investigatory work necessary to satisfy the requirements of either the thesis option or report option for graduation.
- Graduates will write and orally defend a thesis, a report, or a dissertation.
- Graduates will serve in primary roles as graduate research assistants on research projects or on problem investigations sponsored by companies, associations, or government agencies looking for new methodology or science to resolve problems associated with the planning, design, construction, operation, and maintenance of the infrastructure or for related needs.