

# CIVIL ENGINEERING (MS)

## Master of Science in Civil Engineering

Unit: Speed School of Engineering (<https://engineering.louisville.edu>) (GS)

Department: Civil and Environmental Engineering (<https://engineering.louisville.edu/academics/departments/civil/>)

Academic Plan Code(s): CE\_ \_MS, CE\_ \_MS\_O

## Program Information

*This program can be completed 100% online.* (<http://louisville.edu/online/programs/masters/master-of-science-in-civil-engineering/>)

The Master of Science (MS) degree program is intended for persons having an accredited baccalaureate degree in civil engineering. Students interested in the MS degree program should consult the Director of Graduate Studies in the Department of Civil Engineering.

## Degree Requirements

The program of study must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements. Additionally, the program of study must be completed with a 3.00 GPA or better for all academic work attempted in graduate studies.

The requirements for the Master of Science degree are discussed in more detail in the Degree Requirements (<https://catalog.louisville.edu/graduate/general-policies-procedures-requirements/degree-requirements/>) section of this catalog.

## Admission Standards

The admission standards for the Master of Science program in Civil Engineering are as follows:

- All admission applications for the program shall include:
  - A completed graduate application (<http://louisville.edu/graduate/futurestudents/apply-materials/application/>) for the Graduate School,
  - An application fee,
  - At least two letters of recommendation, and
  - Official transcript(s) for all previous post-secondary coursework. All transcripts not in English must be certified as authentic and translated verbatim into English.
- The minimum requirement for admission is the baccalaureate degree or its equivalent from an accredited institution.
- The successful applicant will typically have an undergraduate grade point average of 2.75 or above (on a 4.00 scale).
- International students whose primary language is not English must show English language proficiency by either TOEFL/IELTS/Duolingo score or demonstration of a degree awarded from an acceptable English language institution. The successful applicant will typically have a TOEFL score of 79 or higher or overall IELTS score of 6.5 or higher or a Duolingo score of 105 or higher.

## Program Requirements

### Graduate Work

Remedial work may be specified for those applicants who, in the opinion of the faculty, do not have a sufficient background. The MS program has

four different focus areas available: Structural Engineering, Geotechnical Engineering, Transportation Engineering, and Water Resources.

The minimum curricular requirements for the master's degree program are:

Code	Title	Hours
<i>Core Courses</i>		
CEE 681	Green Engineering & Sustainable Design	3
Three courses from a selected focus area <sup>1</sup>		9
Technical Electives <sup>2,3</sup>		12
Select one of the following:		6
<i>Thesis Option</i>		
CEE 690	Master of Science Thesis in Civil Engineering <sup>4</sup>	
<i>Non-Thesis Option</i>		
Technical Electives <sup>2,3</sup>		
<b>Minimum Total Hours</b>		<b>30</b>

The Master of Science degree must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements. Additionally, the MS degree must be completed with a 3.00 GPA or better for all academic work attempted in graduate studies.

- <sup>1</sup> See Focus Area options below with the courses included in each area.
- <sup>2</sup> Electives must be chosen so that at least one-half of the credits counted toward the degree, exclusive of thesis, are 600-level; at least fifteen (15) credit hours of coursework must be in CEE.
- <sup>3</sup> Technical Electives can be CEE or non-CEE courses. Technical Electives must be approved by the department. Non-CEE Technical Electives cannot be more than six (6) credit hours.
- <sup>4</sup> For the thesis option, a student is required to select both an approved MS thesis topic and the director and members of the thesis committee during the first term of graduate study. The thesis director must give approval for enrollment in CEE 690.

## Focus Areas

### Structural Engineering

Code	Title	Hours
CEE 522	Fundamentals of Prestressed Concrete	3
CEE 523	Timber Design	3
CEE 620	Advanced Mechanics of Solids	3
CEE 621	Finite Element Analysis for Structural Engineers	3
CEE 626	Masonry Design	3

### Geotechnical Engineering

Code	Title	Hours
CEE 553	Advanced Foundation Design	3
CEE 650	Measurement of Soil Properties	3
CEE 652	Advanced Earth Pressure and Retaining Structures	3
CEE 656	Geotechnical Earthquake Engineering	3

### Transportation Engineering

Code	Title	Hours
CEE 560	Traffic Engineering	3
CEE 562	Geometric Design of Highways	3
CEE 660	Transportation Planning and Urban Development	3
CEE 664	Fundamentals of Intelligent Transportation Systems	3

**Water Resources**

Code	Title	Hours
CEE 573	Groundwater Hydrology	3
CEE 673	Advanced Hydrology	3
CEE 676	Sediment Transport and River Mechanics	3
CEE 694	Special Topics in Civil Engineering (Wetland Design)	1-6