

# Civil and Environmental Engineering

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The Civil and Environmental Engineering Department offers graduate study leading to degrees of Master of Science in Civil Engineering and Doctor of Philosophy in Engineering with a Civil Engineering concentration. Both the M.S. and Ph.D. are available via the BCoE Graduate Distance Learning (online) program. Major areas of study are include the following.

- Construction engineering and management
- Construction materials engineering
- Environmental engineering
- Geotechnical engineering
- Structural engineering
- Transportation engineering
- Water resources engineering

The Kelly Gene Cook, Sr. Civil and Environmental Engineering Laboratories include research capabilities in the following areas.

- Construction materials evaluation
- Environmental analysis of water and soils
- Structural systems analysis
- Soil mechanics evaluation
- Structural systems analysis
- Transportation system modeling
- Water resources characterization

Space is also available for bench-scale and pilot-scale experimentation. Graduate assistantships are supported through sponsored research, instructional support and teaching assignments, and other departmental resources when available from the University, the Bagley College of Engineering, and the Department.

Applications for the degree programs are reviewed three times a year, March 15 for fall semester admission, September 15 for spring semester admission, and January 15 for summer semester admission. Applications for the off-campus M.S. degree program may be considered for review up to two months after these deadlines upon request by the applicant. *Note - These deadlines differ from university published deadlines and are specific to the CEE department to provide timely feedback on application status and appropriate resource allocation.*

For information about the graduate program contact: Graduate Coordinator (p. 1).

## Admission Criteria

Applicants are admitted to graduate study in the CEE upon approval of the OGS, the Departmental Graduate Coordinator, and the Department's Graduate Faculty. Admission is based on the criteria listed below.

Admission requires that the applicant be accepted by a faculty member in their sub-discipline area who is willing to serve as their major professor. Applicants are encouraged to appropriate faculty after completion of the application.

GRE scores are required for all applicants who do not have an EAC/ABET-accredited civil, construction, or environmental engineering degree. There is not a minimum required GRE score for admission as the admission decision is not based on any one single factor. However, the score should be competitive, and successful applicants to the CEE graduate program typically have a GRE score of 157 or higher on the Quantitative Reasoning section of the exam. (Note: GRE test scores are only valid for five years.)

## Regular Admission

Prerequisites for regular admission into Civil Engineering and Environmental Engineering's graduate program include all of the general requirements of the Office of the Graduate School. Regular admission requires that the applicant have a Bachelor of Science (B.S., Master of Science (M.S.), or Master of Engineering (M.E.) in Civil Engineering. The qualifying degree program must provide the applicant with the core competencies of the sub-

discipline in which the applicant wishes to focus their graduate studies. The minimum GPA for regular admission into the CEE graduate program is 3.00 on a 4.00 scale as computed for courses that comprise the last two academic years of the qualifying undergraduate degree. For applicants required to demonstrate English proficiency, they must obtain a minimum TOEFL (Test of English as a Foreign Language) score of 79 iBT. As an alternative, an international student may take the IELTS (International English Language Testing Systems) exam on which they must obtain a minimum score of 6.5.

## Contingent Admission

Applicants meeting University requirements for admission but failing to meet the department's requirements for regular admission may be considered for contingent admission. Applicants who have undergraduate or graduate degrees in engineering-related disciplines may be admitted on contingent status. The minimum GPA required for contingent admission to the CEE graduate program is 2.75 (A=4.00). For applicants required to demonstrate English proficiency, they must obtain a minimum TOEFL score of 69 iBT. As an alternative, an international student may take the IELTS exam on which they must obtain a minimum score of 6.0. If the applicant fails to achieve the minimum score for regular admission, satisfactory completion of an "English as a Second Language" (ESL) course, ESL 5323, will be required. Those receiving contingent admission are eligible to receive Graduate Teaching and Graduate Research Assistantships. Within the first award enrollment period, the student must satisfy the requirements to obtain regular admission status. An assistantship award will be terminated if these requirements are not met. To be removed from contingent status, the student must successfully complete the specified requirements defined by their graduate committee with a grade of B or better for each course. Upon completion of the specified requirements, removal of the student from the contingent status will be documented in the Department through a letter by the major advisor co-signed by the Department Graduate Coordinator. This letter will be placed in the student's file, and OGS is made aware of the change of status.

## Provisional Admission

Applicants failing to meet the requirements for regular or contingent admission may be considered for provisional admission. Applicants who have undergraduate or graduate degrees in engineering-related disciplines may be admitted on provisional status. The minimum GPA required for provisional admission to the CEE graduate program is 2.50 (A=4.00). For applicants required to demonstrate English proficiency, they must obtain a minimum TOEFL score of 53 iBT. As an alternative, an international student may take the IELTS exam on which they must obtain a minimum score of 4.5. If the applicant achieves a TOEFL score of 61 or above, or IELTS score of 5.5 or above, satisfactory completion of two ESL courses, ESL 5120 and ESL 5323, will be required. If not, satisfactory completion of ESL 5110, 5120, and ESL 5323 will be required. To be removed provisional status, the student must complete their ESL requirement and earn a 3.00 GPA or higher on the first nine graduate credit hours taken after admission to the CEE graduate program and apply to their Program of Stud. Transfer credits cannot be used to satisfy this requirement. Upon completion of the specified requirements, removal of the student from the provisional status will be reported to OS through a letter by the major advisor so-signed by the Department Graduate Coordinator **While in the provisional status, a student is not eligible to hold a graduate assistantship.**

## Academic Performance

The graduate student has primary responsibility for understanding, and fully complying with, all MSU and CEE graduate policies regarding degree requirements and performance expectations relative to complete assignments as applicable to their graduate. It is also their responsibility to inquire and resolve any questions they may have regarding these same policies and performance expectations. Students cannot graduate while on provisional status, contingent status, or academic probation.

## Academic Probation

Once admitted to the CEE graduate program, a student who fails to maintain a satisfactory academic record in terms of GPA, research progress (as applicable), and examinations will be considered to be on academic probation. At the end of each semester, CEE will evaluate the records of all CEE graduate students. A student not meeting graduation requirements may be placed on probation if any of the following conditions exist. Remediation of the deficiency and removal from probation requires action as defined below.

### Deficiency Resulting in Probation and Remedial Action Required for Removal from Probation:

Deficiency: The overall GPA on all graduate credit hours completed drops below 3.00.

Remedial Action: Achieve an overall GPA of 3.00 or above on all graduate credit hours completed within the next 9 credit hours completed.

Deficiency: Obtaining a grade below C on a course on the Program of Study.

Remedial Action: Earn a grade of B or above on the course in which the lower grade was received or the course replacing it on the Program of Study.

Deficiency: Obtaining a grade of "U" in a research course (i.e., CE 8000 or CE 9000).

Remedial Action: Earn a grade of "S" the next time research course hours (i.e., CE 8000 or CE 9000) are taken by complying with the remedial actions set forth by the major professor.

Deficiency: Failing to pass an examination administered by the graduate committee (i.e., thesis defense, comprehensive exam, qualifying exam, preliminary exam, or dissertation defense)

Remedial Action: Retake and pass the examination within the timeframe set forth by the graduate committee at the time it was failed.

The student will be advised in writing of their academic probation and remedial actions that they need to take to be removed from probation.

## Dismissal

At the end of each semester, CEE will evaluate the records of all CEE graduate students. A student may be dismissed from the CEE graduate program if:

- they were admitted contingent status due to deficiencies in prerequisite coursework and fails to make satisfactory progress toward completion of prerequisites.
- they were admitted on provisional status and makes less than a B in completion of the first nine hours of graduate studies.
- they were on academic probation and unable to meet all requirements for good academic standing by the completion of the next nine hours of progress toward the degree.
- The student makes a grade of D or F in a graduate or undergraduate course attempted while in the CEE graduation program.
- A student making a second U grade.
- A student fails to achieve satisfactory results following the second attempt of any examination administered by the graduate committee.

## Reapplying

Graduate students who have not registered for courses during three consecutive regular semesters (i.e., fall and spring semesters) will need to submit a new application to the Graduate School and be readmitted before they resume graduate studies.

Master's students may elect either the thesis or non-thesis option. The minimum credit hours that must be satisfactorily completed for either option are tabulated below.

## Master of Science in Civil Engineering - Thesis

<b>Graduate-level coursework</b> <sup>1, 2, 3, 4, 5</sup>	24
CE courses (12 hours including a minimum of 9 at the Full Graduate-level)	
Engineering courses (a minimum of 15 hours )	
CE 8000	6
Thesis Research/ Thesis in Civil & Environmental Engineering	
<b>Total Hours</b>	<b>30</b>

- 1 A minimum of 12 hours on the Program of Study at the full-graduate level is required (courses numbered 7000, 8000, 9000).
- 2 A maximum of 6 graduate hours in Business can be approved.
- 3 A maximum of 6 hours at the 7000-level can be approved.
- 4 A maximum of 9 hours taken as an Unclassified graduate student can be approved.
- 5 A total of 9 graduate hours may be transferred from another university.

## Master of Science in Civil Engineering - Non-Thesis

<b>Graduate-level coursework</b> <sup>1, 2, 3, 4,5</sup>	33
CE courses (18 hours including a minimum of 12 at the full graduate-level)	
Engineering courses ( a minimum of 18 hours)	
<b>Total Hours</b>	<b>33</b>

- 1 A minimum of 15 hours on the Program of Study at the full graduate-level is required (courses numbered 7000, 8000, 9000).
- 2 A maximum of 6 graduate hours in Business can be approved.
- 3 A maximum of 6 hours at the 7000-level can be approved.
- 4 A maximum of 9 hours taken as an Unclassified graduate student can be approved.
- 5 A total of 9 graduate hours may be transferred from another university.

1. Students cannot graduate while on provisional status, contingent status, or academic probation.
2. A graduate student cannot graduate with more than 6 credit hours of C grades earned for all courses since admission to the program, including those outside the program of study.
3. A student cannot graduate with an Incomplete ("I") grade, regardless of whether it is on the program of study or not. The Incomplete grade must be rectified so that a grade can be assigned and an overall GPA determined for graduation eligibility.
4. Students electing the thesis-option M.S. are expected to prepare at least one manuscript acceptable to the major professor peer-reviewed journals or conferences.
5. Thesis students are expected to successfully pass their thesis defense as administered by their graduate committee.

6. Non-thesis students must successfully pass a comprehensive (exit) examination administered by the graduate committee. The format for this examination will be one of two options as agreed to by the student and graduate committee:

- Project and examination - A project will be completed as a Directed Individual Study (up to 6 credit hours) in partial fulfillment of the degree requirements. A written report on the project will be submitted and a formal oral presentation of the work will be made to the graduate committee. The comprehensive examination results will be based on the committee's inquisitive evaluation of this work.  
or
- Examination only - An inquisitive review of all graduate coursework and core competency areas will be conducted by the graduate committee. The format and content of the exam is at the discretion of the committee and the comprehensive examination results will be based on the committee's evaluation of the student's performance.

7. The time limit on credits earned that can be accepted toward fulfilling the requirements for a Master of Science degree is eight years. The years are counted from the semester and year of admission. Example: If a master's student was admitted in spring 2018, the student's time expires in fall 2025. Extensions may be requested of the Graduate School with reasonable justification and if the coursework in question is still relevant to the field of study.

8. Transferred credits are those earned at another university. Shared credits are defined as those credits earned to MSU. As approved by the student's committee, a total of 9 shared and transferred credit hours can be used towards a degree. Also, a maximum of 9 credit hours can be shared between two degrees of the same level. Students who transition from an Unclassified Admission status into a degree program may apply up to 9 hours taken while Unclassified regardless of whether they are transferring or sharing credits.

## **Doctor of Philosophy in Engineering with Civil Engineering Concentration**

1. Students cannot graduate while on provisional status, contingent status, or academic probation.
2. For students with an acceptable M.S. degree, a minimum of 18 hours of coursework approved by their committee and a minimum of 20 hours of research (CE 9000) are required.
3. For students admitted without an acceptable M.S. degree (i.e., Direct Admission Ph.D. students), there are three degree requirements options as outlined here:
  1. Awarded a Ph.D. and a Non-Thesis Option M.S. by completing a required minimum 51 hours of credit coursework and 20 dissertation hours (CE 9000) for a total of 71 minimum credit hours.
  2. Awarded a Ph.D. and a Thesis-Option M.S. by completing a required minimum of 42 credit coursework, 6 thesis hours (CE 8000), and 20 dissertation hours (CE 9000) for a total of 68 minimum credit hours.
  3. Awarded Ph.D. by completing a required minimum of 42 hours of credit coursework and 20 dissertation hours (CE 9000) for a total of 62 minimum credit hours.

In addition, of the courses completed, the following minimums are required:

- 12 hours in CE courses, 9 of which are at the full graduate-level (courses numbered 7000, 8000, and 9000).
  - 12 hours at the full graduate-level, and
  - 15 hours in Engineering.
4. A graduate student cannot graduate with more than 6 credit hours of C grades earned for all courses since admission to the program, including those outside the Program of Study.
  5. A student cannot graduate with an Incomplete ("I") grade, regardless of whether it is on the program of study or not. The Incomplete grade must be rectified so that a grade can be assigned and an overall GA determined for graduation eligibility.
  6. Students are required to pass three examinations:
    - Qualifying Exam (Entrance Exam) - This examination is taken before complete of 9 credit hours of coursework beyond M.S. (30 credit hours of coursework for Direct Admission Ph.D. students) after admission to the program. The examination will be in a format specified by the student's major professor. The student's major professor may require that the exam be taken earlier, given reasonable notice. The student must be enrolled during the semester in which the exam is taken.
    - Written Preliminary Exam - This examination is taken after the student completes, or is within 6 credit hours of completing, the coursework on the Program of Study approved by the graduate committee at the time of the examination. The examination will be in a format specified by the student's graduate committee.
    - Oral Comprehensive Exam - This examination is taken after the Written Preliminary Exam. After successfully passing the Written Preliminary and Oral Comprehensive Exams, the student becomes a Ph.D. Candidate. The examination will be in a format specified by the student's graduate committee.

7. The student is required to produce and defend a dissertation. The student must submit a draft dissertation to the graduate committee at least two weeks before its defense. The student must subsequently defend the dissertation, acceptably address all comments and required changes in the document, and submit a final dissertation acceptable to the graduate committee, MSU Library, and the Office of the Graduate School.
8. From the work completed during Ph.D. studies, students are required to prepare at least two manuscripts suitable for submission to peer-reviewed journals and acceptable to the major professor.
9. The time limit on credits earned that can be accepted toward fulfilling the requirements for a Ph.D. is five years following satisfactory completion of the Preliminary and Comprehensive Exams. Extensions may be requested of the Graduate School with reasonable justification if the coursework in question is still relevant to the field of study.
10. Transferred credits are those earned at another university. Shared credits are defined as those credits earned at MSU. As approved by the student's committee, a total of 9 shared and transferred credit hours can be used toward a degree. Also, a maximum of 9 credit hours can be shared between two degrees of the same level. Students who transition from an Unclassified Admission status into a degree program may apply up to 9 hours taken while Unclassified regardless of whether they are transferring or sharing credits.