

# MASTER OF CIVIL AND ENVIRONMENTAL ENGINEERING (MCEE) DEGREE IN THE FIELD OF CIVIL ENGINEERING

## Program Learning Outcomes for the MCEE Degree in the field of Civil Engineering

Upon completing the MCEE degree in the field of Civil Engineering, students will be able to:

1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
2. Demonstrate professional written and oral communication skills.

## Requirements for the MCEE in the field of Civil Engineering

The MCEE degree is a non-thesis master's degree. For general university requirements, please see [Non-Thesis Master's Degrees \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Students pursuing the MCEE degree in the field of Civil Engineering must complete:

- A minimum of 11 courses (30-32 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the [Policies](#) (p. 2) tab.
- A minimum of one graduate seminar (CEVE 601 or CEVE 602).
- A final project (CEVE 590).
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

The Master of Civil and Environmental Engineering (MCEE) degree is a professional non-thesis master's degree. Students who have a BS or BA degree in any field of engineering or related study may apply. Depending on their background, some students may need to fulfill prerequisites or take remedial engineering courses to earn the MCEE degree. For more information, see the [Professional Master's Program](#) tab on the [department](#)

[website \(https://cee.rice.edu/academics/graduate-programs/master-civil-and-environmental-engineering/\)](https://cee.rice.edu/academics/graduate-programs/master-civil-and-environmental-engineering/).

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's [Official Certifier \(https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/\)](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

Code	Title	Credit Hours
Total Credit Hours for the MCEE Degree in the field of Civil Engineering		30-32

### Degree Requirements

Code	Title	Credit Hours
<b>Core Requirements</b>		
<b>Advanced Courses</b>		
Select 6 courses from the following:		18
CEVE 500 / MECH 500	ADVANCED MECHANICS OF MATERIALS	
CEVE 524	TIME-DEPENDENT SYSTEM RELIABILITY METHODS AND APPLICATIONS	
CEVE 527 / MECH 527	PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM	
CEVE 531	DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS	
CEVE 541	DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS	
CEVE 554 / BIOE 554 / MECH 554	COMPUTATIONAL FLUID MECHANICS	
CEVE 560	BRIDGE ENGINEERING AND EXTREME EVENTS	
CEVE 562	INFRASTRUCTURE RESILIENCE TO MULTIPLE HAZARDS	
CEVE 571	PRINCIPLES OF SOIL MECHANICS AND FOUNDATION ENGINEERING	
CEVE 576 / MECH 576	STRUCTURAL DYNAMIC SYSTEMS	
CEVE 578	EARTHQUAKE ENGINEERING	
CEVE 592	MODELING AND ANALYSIS OF NETWORKED SYSTEMS	
CEVE 596	SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING	
CEVE 678 / MECH 678	APPLIED STOCHASTIC MECHANICS	
CEVE 679 / MECH 679	APPLIED MONTE CARLO ANALYSIS	
Seminar		

Select 1 course from the following: 1

CEVE 601	SEMINAR
CEVE 602	SEMINAR

#### Elective Requirements

##### Directed Civil Engineering Electives

Select 2 courses from the Core Requirements or from the following: 6

CEVE 517 / MECH 517	FINITE ELEMENT ANALYSIS
CEVE 555 / CMOR 523	NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
CMOR 522	NUMERICAL ANALYSIS
MECH 502	VIBRATIONS
RCEL 506	APPLIED STATISTICS AND DATA SCIENCE FOR ENGINEERING LEADERS

##### Professional Development Electives

Select 1 course from the following: 3-4

ANTH 532	THE SOCIAL LIFE OF CLEAN ENERGY
CEVE 505 / ENGI 505	ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
CEVE 506	INTRODUCTION TO ENVIRONMENTAL LAW
CEVE 507	ENERGY AND THE ENVIRONMENT
CEVE 528 / ENGI 528	ENGINEERING ECONOMICS
ECON 601	ENERGY ECONOMICS I
ENGI 501	WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER'S STUDENTS IN ENGINEERING
ENGI 529 / CEVE 529	ETHICS AND ENGINEERING LEADERSHIP
NSCI 511	SCIENCE POLICY, AND ETHICS
NSCI 610 / ENGI 610	MANAGEMENT FOR SCIENCE AND ENGINEERING
RCEL 501	ENGINEERING MANAGEMENT & LEADERSHIP THEORY AND APPLICATION
RCEL 502	ENGINEERING PROJECT MANAGEMENT
RCEL 503	ENGINEERING PRODUCT MANAGEMENT IN INDUSTRY 4.0
RCEL 504	ETHICAL-TECHNICAL LEADERSHIP
RCEL 505	ENGINEERING ECONOMICS FOR ENGINEERING LEADERS

#### MCEE Final Project

CEVE 590 MCEE SPECIAL STUDY <sup>1</sup> 2-3

**Total Credit Hours** 30-32

#### Footnotes and Additional Information

<sup>1</sup> The professional master's final project is overseen by a Civil and Environmental Engineering department faculty member.

## Policies for the MCEE Degree in the field of Civil Engineering

### Department of Civil and Environmental Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Civil and Environmental Engineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2023\\_24/Civil\\_Environmental\\_Engineering\\_Graduate\\_Handbook.pdf](https://gradhandbooks.rice.edu/2023_24/Civil_Environmental_Engineering_Graduate_Handbook.pdf)

### Admission

Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BS in Civil Engineering with a significant emphasis on structural engineering, but students with other undergraduate degrees may apply if they have adequate preparation in mathematics, mechanics, and structural analysis and design.

Applicants pursuing graduate education in environmental engineering or hydrology should have a BS or BA in related areas of science and engineering and preparation in mathematics, science, and engineering or related courses. A BS degree in engineering or a degree in natural science is preferred.

Admission into a professional program is granted separately from admission into a research and thesis program. Professional degree programs terminate when the degree is awarded. Students who wish to continue graduate study after completing a professional program must apply for admission into a research program.

### Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

### Departmental Transfer Credit Guidelines

Students pursuing the MCEE degree in the field of Civil Engineering or Environmental Engineering should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Request for transfer credit will be considered by the program director on an individual case-by-case basis.

### Additional Information

For additional information, please see the Civil and Environmental Engineering website: <https://cee.rice.edu/>

## Opportunities for the MCEE Degree in the field of Civil Engineering

### Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this *Undergraduate - Graduate Concurrent Enrollment* opportunity, including specific information on the registration process can be found [here \(https://ga.rice.edu/undergraduate-students/academic-opportunities/undergraduate-graduate-concurrent-enrollment/\)](https://ga.rice.edu/undergraduate-students/academic-opportunities/undergraduate-graduate-concurrent-enrollment/).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Civil and Environmental Engineering (MCEE) degree. For additional information, students should contact their undergraduate major advisor and the (MCEE) chair of the department graduate studies committee.

### George R. Brown School of Engineering Scholarships for Professional Master's Degrees in Engineering

The George R. Brown School of Engineering Scholarships for Professional Master's Degrees in Engineering were established by the Dean of the School of Engineering to encourage outstanding Rice undergraduate engineering students to pursue a professional master's degree at Rice.

### Rice Global Forum (RGF)

The Rice Global Forum (RGF) is a group of industry professionals plus Rice faculty who gather regularly to discuss topics that define their interests. They sponsor the Engineering Competition each year and give out scholarships that are derived from membership dues. The scholarships are geared toward professional master's and terminal research master's (MS) students.

### Additional Information

For additional information, please see the Civil and Environmental Engineering website: <https://cee.rice.edu/>