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/). 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/).

Students pursuing the MCEE degree in the field of Civil Engineering must complete:

- A minimum of 11 courses (30 credit hours) 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 department website (http://www.ceve.rice.edu/).

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/). 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours for the MCEE Degree in the field of Civil Engineering</td>
<td>30</td>
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### Degree Requirements

#### Core Requirements

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>CEVE 500 / MECH 500</td>
<td>ADVANCED MECHANICS OF MATERIALS</td>
<td>2</td>
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<td>CEVE 503 / MECH 520</td>
<td>NONLINEAR FINITE ELEMENT ANALYSIS</td>
<td>2</td>
</tr>
<tr>
<td>CEVE 527 / MECH 527</td>
<td>PHYSICS GUIDED MACHINE LEARNING &amp; DATA DRIVEN MODELING FEM</td>
<td>2</td>
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<tr>
<td>CEVE 531</td>
<td>DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS</td>
<td>2</td>
</tr>
<tr>
<td>CEVE 541</td>
<td>DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS</td>
<td>2</td>
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<tr>
<td>CEVE 554 / BIOE 554 / MECH 554</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td>2</td>
</tr>
<tr>
<td>CEVE 560</td>
<td>BRIDGE ENGINEERING AND EXTREME EVENTS</td>
<td>2</td>
</tr>
<tr>
<td>CEVE 571</td>
<td>PRINCIPLES OF SOIL MECHANICS AND FOUNDATION ENGINEERING</td>
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<tr>
<td>CEVE 576 / MECH 576</td>
<td>STRUCTURAL DYNAMIC SYSTEMS</td>
<td>2</td>
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<td>CEVE 578</td>
<td>EARTHQUAKE ENGINEERING</td>
<td>2</td>
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<tr>
<td>CEVE 592</td>
<td>MODELING AND ANALYSIS OF NETWORKED SYSTEMS</td>
<td>2</td>
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<tr>
<td>CEVE 596</td>
<td>SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING</td>
<td>2</td>
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<td>CEVE 678 / MECH 678</td>
<td>APPLIED STOCHASTIC MECHANICS</td>
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<td>CEVE 679 / MECH 679</td>
<td>APPLIED MONTE CARLO ANALYSIS</td>
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#### Seminar

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<tr>
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<tr>
<td>CEVE 601</td>
<td>SEMINAR</td>
<td>2</td>
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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). 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://ceve.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/).

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://ceve.rice.edu/