Civil Engineering (MS)

Degree Requirements

The program leading to the Master of Science in Civil Engineering focuses on civil engineering in the coastal environment and allows for specialization in several possible civil engineering sub-disciplines: Environmental Engineering, Geotechnical Engineering, Structural Engineering, Transportation Engineering, or Water Resources/Coastal Engineering. Program admission and MS Degree requirements, as well as plan of study options (thesis, project, and coursework only), are described under the College of Engineering section of this Bulletin. Most graduate courses in Civil Engineering are offered in late afternoon or early evening to accommodate practicing engineers. See degree requirements.

Admission To The MSCE Program

The following criteria supplement the College of Engineering admission criteria (see Admission To Graduate Programs):

1. Regular Admission
   a. A grade-point average of 3.0 or greater (A=4.0) on all undergraduate work is required.
   b. A minimum score of 151 on the GRE quantitative section and a minimum score of 146 on the GRE verbal section is required.
   c. Names and e-mail addresses of three (3) references who can evaluate the applicant's previous academic and professional work must be submitted with the application.
   d. Verification of registration by examination as a Professional Engineer (P.E.) can be substituted for GPA and GRE.
   e. International students must submit documentary evidence showing TOEFL test scores of 71 on the internet based test or IELTS band score of 6.5 or higher.

2. Provisional Admission
   a. A minimum grade-point average of 2.5 (A=4.0) on all undergraduate work is required.
   b. A minimum score of 151 on the GRE quantitative section and a minimum score of 146 on the GRE verbal section is required.
   c. Names and e-mail addresses of three (3) references who can evaluate the applicant's previous academic and professional work must be submitted with the application.
   d. International students must submit documentary evidence showing TOEFL test scores of 71 on the internet based test or IELTS band score of 6.5 or higher.

Applicants to the MSCE program must submit official scores on the Graduate Record Exam (GRE). This requirement is waived for students who received the BSCE degree from USA. Those students may be required, however, to present GRE scores to be eligible for some assistantships or fellowships.

The minimum credit hour requirements for the different options pertaining to the MSCE degree are:

- Thesis Option: 30 credit hours
- Project Option: 33 credit hours
- Course Option: 33 credit hours

Department Information

<table>
<thead>
<tr>
<th>Department of Civil, Coastal, and Environmental Engineering Staff</th>
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<tbody>
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Civil Engineering involves the design and construction of systems necessary for our modern society to function. It encompasses many technical specialties whose focus is the design of large, normally one-of-a-kind, facilities such as bridges, buildings, tunnels, highways, dams, waterways, airports, flood control systems, coastal protection systems, water supply networks, and waste treatment plants. As our society expands, challenging opportunities will continue to be available for Civil Engineers practicing in their own private firms, in large companies, or in governmental agencies.

BSCE Program Educational Objectives:
The educational objectives of the Civil Engineering undergraduate program are that, within a few years of program completion, graduates will have used the knowledge and skills gain through academic preparation and post-graduation experience so they have:

1. Advanced in the civil engineering profession, obtained professional licensure, and applied engineering knowledge and problem-solving skills to multi-disciplinary projects.
2. Incorporated economic, environmental, social, regulatory, constructability, and sustainability considerations into the practice of civil engineering.
3. Exhibited effective communication, teamwork, leadership, initiative, project management, and professional and ethical behavior as complements to technical competence.
4. Continued their technical and professional development, which may include graduate level education, continuing education, and participation in professional organizations.

BSCE Student Outcomes:
By the time of graduation from the Civil Engineering Program, students should attain the following outcomes:

1. An ability to apply knowledge of mathematics, science, and engineering.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. An ability to function on multidisciplinary teams.
5. An ability to identify, formulate, and solve engineering problems.
6. An understanding of professional and ethical responsibility.
7. An ability to communicate effectively.
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
9. A recognition of the need for, and an ability to engage in life-long learning.
10. A knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
12. An appreciation of the unique concerns regarding safety when working with electrical and computer systems.

The Bachelor of Science in Civil Engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

The curriculum builds on a strong base in mathematics, physical sciences, engineering sciences, and humanities developed primarily during the freshman and sophomore years. During the junior year, students develop an understanding of the fundamentals of each area of Civil Engineering. The specialty areas include:

- Environmental Engineering
- Geotechnical Engineering
- Structural Engineering
- Transportation Engineering
- Water Resources and Coastal Engineering

The senior year focuses on design, construction practices, and the integration of more advanced knowledge in civil engineering. A comprehensive project with students participating in a design team prepares them to enter professional practice.
Satisfactory completion of the program outlined below leads to a Bachelor of Science in Civil Engineering. Students must also comply with the College of Engineering Requirements for a Degree which is covered in this Bulletin under College of Engineering.