

# BACHELOR OF SCIENCE IN CIVIL ENGINEERING

The four-year curriculum leading to the Bachelor of Science in Civil Engineering (BS CE) enables the graduate to enter professional practice as an engineer or to continue their studies in programs leading to advanced degrees in the following broad fields of specialization:

- Construction Engineering,
- Environmental and Water Systems,
- Geotechnical Systems,
- Structural Systems,
- Transportation Systems.

The BS CE degree program is designed to offer depth in course material considered essential for all civil engineers, as well as flexibility in selecting elective courses that offer breadth of topic exposure. Civil engineers contribute to society in numerous ways; thus, the School's philosophy is to provide the student with a range of electives that meet student interests. Civil engineers must not only be technically proficient, but also must be effective in working with people and with professionals in other disciplines.

## Prerequisites and Other Requirements

Students must satisfy all prerequisites for a particular course. In addition to campus-wide academic requirements for graduation with a bachelor's degree, the following are also required for the BSCE degree:

A **C** or better must have been earned in the following:

Code	Title	Credit Hours
MATH 1551	Differential Calculus	2
MATH 1552	Integral Calculus	4
MATH 1553	Introduction to Linear Algebra	2
MATH 2552	Differential Equations	4
PHYS 2211	Introductory Physics I	4
CHEM 1310	Principles of General Chemistry for Engineers	4
COE 2001	Statics	2

The number of quality points earned in CEE courses taken toward the degree must be at least twice the number of credit hours in those courses. If a course is repeated, the latest grade will be included in applying this rule. No CEE course may be repeated for the purpose of satisfying this rule if the original grade was a **C** or higher.

## Program Educational Objectives

Graduates will pursue a diverse range of careers that build on their engineering education. During the initial years of their careers, graduates will:

1. be successfully employed in civil- and environmental-related fields, or other career paths, with prominent companies and organizations in industry, government, non-governmental organizations, and entrepreneurial ventures;
2. pursue graduate education and research in civil and environmental engineering, and other fields;

3. be global collaborators, participating in interdisciplinary and culturally diverse teams, and advancing in leadership positions in the profession;
4. continue professional development by obtaining professional licensure or certifications, continuing education credits, or post-graduate study;
5. be active in service to the profession and to the State of Georgia, the nation, and the world.

The School of Civil and Environmental Engineering has established an optional concentration area for the Bachelor of Science Civil Engineering degree in the area of Construction and Infrastructure Systems Engineering.

Bachelor of Science in Civil Engineering - Standard Option

Bachelor of Science in Civil Engineering - Construction and Infrastructure Systems Engineering

## Cooperative Plan

Since 1912, Georgia Tech has offered a five-year Undergraduate Cooperative Program to those students who wish to combine career-related experience with classroom studies. The program is the fourth oldest of its kind in the world and the largest optional co-op program in the country.

Students alternate between work assignments and classroom studies until they complete four or five semesters of work. Co-op students with a civil engineering major complete the same coursework on campus that is completed by regular four-year students. Most co-op students begin the program as freshmen or sophomores and are classified as full-time students regardless of whether they are attending classes on campus or are full time at an employer's location.

Students who participate in the program have the opportunity to develop career interests, become more confident in their career choices, and develop human relations skills through their work experience. Graduates of the program receive a bachelor's degree with a Cooperative Plan Designation.

The Georgia Tech Internship Program is for civil engineering students who do not participate in the Cooperative Program, but want some career-related experience before graduation. Students generally work for one semester, usually in the summer, with an option for more work experiences. Students must have completed at least 30 hours of coursework at Georgia Tech before they can participate in the program. For more details, visit [www.gtip.gatech.edu/](http://www.gtip.gatech.edu/).

In addition, there is the Work Abroad Program ([www.workabroad.gatech.edu](http://www.workabroad.gatech.edu)), which complements a student's formal education with paid international work experience directly related to civil engineering. Participating students typically are juniors and seniors. The international work assignments are designed to include practical training, cross-cultural exposure and learning, and the acquisition of needed skills. This program satisfies requirements for the International Plan, which is available to civil engineering students.

For more information about all of the programs in the Center for Career Discovery and Development, visit [www.careerdiscovery.gatech.edu](http://www.careerdiscovery.gatech.edu).

## International Plan

The International Plan is a challenging and coherent academic program for undergraduates that develops global competence within the context of a student's major. It is a degree-long program that integrates international studies and experiences into any participating major at Georgia Tech. It helps to prepare Georgia Tech graduates professionally and personally for successful lives in the twenty-first century.

The International Plan is not intended to replace current international programs; it supplements them. Existing study abroad opportunities continue to be offered. It is also not intended to be an add-on to the current degree programs. It is intended to be another curriculum path to earn a degree in which international competence is integrated into the program of study. The plan can be completed within the normal timeframe of four years of undergraduate study.

The overarching model for the International Plan has four components:

1. International coursework: Three courses to include one from each of the following categories:
  - a. International relations
  - b. Global economics
  - c. A course about a specific country or region
2. International experience: Two terms abroad (not less than 26 weeks) engaged in any combination of study abroad, research, or internship
3. Second language proficiency: All students in the program are expected to reach at least the proficiency level equivalent to two years of college-level language study. Students who use the language to study, conduct research, or participate in an internship during their international experience are expected to attain a higher level of proficiency. Language proficiency is determined by testing (not course credits).
4. Culminating course: A capstone course in the major designed to tie the international studies and experiences together with the student's major

Completion of the International Plan is recognized by a designation on the student's diploma indicating completion of the degree with global competence.

For additional information about the International Plan visit [www.oie.gatech.edu/internationalplan](http://www.oie.gatech.edu/internationalplan).

## Research Option

The Research Option is intended for students who seek a concentrated research experience, culminating in an undergraduate thesis, integrated into their undergraduate studies in civil engineering. In order to graduate with a BSC.E – Research Option degree, the students must:

Complete at least nine units of undergraduate research (over at least two, preferably three terms). Research may be for either pay (CEE 2698 or CEE 4698) or credit (CEE 2699 or CEE 4699). Research for credit may be used towards the BS CE approved elective requirements.

Write an undergraduate thesis/report of research on their findings. This is usually done during the graduating term. The thesis will be published in the Georgia Tech Library.

Take two 1-hour classes: LMC 4701 (typically taken during the first or second semester of research) and LMC 4702 (taken during the thesis-writing semester).

At least six of the nine required credit hours of research should be on the same topic. A research proposal must be approved by a faculty advisor and one other faculty member. This proposal will be completed in LMC 4701 which serves as a prerequisite for LMC 4702. Completion of Research Option is noted on the student's transcript.

## BS/MS Option - Civil Engineering

The BS/MS Option is designed to attract the best-of-the-best undergraduate students and is especially intended for students who demonstrate an interest in, and ability for, additional education beyond the bachelor's degree.

Students will be eligible to apply for the program after completion of 30 semester credit hours at Georgia Tech and appropriate progress in their degree program. As a practical matter, students should apply for the program at least three semesters prior to graduation in order to take graduate-level courses prior to receiving their BS degree. Students must have a Georgia Tech GPA of 3.5 or higher for admission into the BS/MS Program in Civil Engineering.

This program is available only to those completing a Bachelor's degree with the School of Civil and Environmental Engineering

Students in the BS/MS Option remain undergraduates until they meet the requirements for the bachelor's degree, at which point they will receive the BSCE or BSEnvE degree. Their status will then be changed to graduate status. Graduate school application fees and the GRE requirements are waived.

Once admitted, a GPA of at least 3.0 must be maintained to remain in the program. Additionally, students in the BS/MS program are eligible to use the Graduate Course Option even if their cumulative grade-point average is below 3.5 at the time they complete their bachelor's degree.