

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

The School of Electrical and Computer Engineering offers two undergraduate degree programs: electrical engineering (EE) and computer engineering (CmpE). Both programs include elective hours, enabling students to individually tailor their programs to provide emphasis in a particular specialization or exposure to a broad range of subjects. Engineering analysis and design concepts are integrated throughout both programs, culminating in a common major design experience involving a broad range of issues including economic and societal considerations.

The field of computer engineering is centered in digital design, computer architecture, computer networks and internetworking, and computer applications. The BS CmpE program offers elective courses in a wide variety of specializations, including computer architecture; embedded systems and software; design tools, test, and verification; computer networks and internetworking; distributed systems and software; and VLSI design. Additionally, students may elect to take advanced courses in other EE specializations, computer science, or programs, such as mathematics, physics, or management. As an alternative to the BS CmpE degree, students may choose a computer engineering specialization within the BS EE degree program.

Program Educational Objectives

Within five years after graduating, the Georgia Institute of Technology School of Electrical and Computer Engineering graduates will have the skills, knowledge, and choices to:

- Be successful and recognized **leaders** in professional practice in electrical and computer engineering or in related fields.
- Be adaptive-learners and life-long **innovators** through advanced education/degrees, strategic professional development, and entrepreneurship that focuses on the needs of stakeholders.
- Be **problem solvers** who consider global, societal, and environmental impact and are prepared to address problems that are beyond conventional technical understanding and knowledge. Graduates will demonstrate technical competence, ethical reasoning, and creativity in identifying, formulating, analyzing, and developing solutions using appropriate techniques, skills, and tools.
- Be **team builders**, who lead and participate in culturally diverse teams and promote breadth of perspectives in developing, communicating, and executing solutions.

Cybersecurity and Distributed System & Software Design

Cybersecurity and Computing Hardware & Emerging Architectures

Cybersecurity and Signal & Information Processing

Cybersecurity and Telecommunications

Cybersecurity and Robotics & Autonomous Systems

Cybersecurity and Systems & Architecture

Cybersecurity and Devices

Cybersecurity and Information Internetworks

Computing Hardware & Emerging Architectures and Signal & Information Processing

Computing Hardware & Emerging Architectures and Telecommunications

Computing Hardware & Emerging Architectures and Robotics & Autonomous Systems

Computing Hardware & Emerging Architectures and Systems & Architecture

Computing Hardware & Emerging Architectures and Devices

Computing Hardware & Emerging Architectures and Information Internetworks

Distributed System & Software Design and Telecommunications

Distributed System & Software Design and Systems & Architecture

Distributed System & Software Design and Signal & Information Processing

Distributed System & Software Design and Robotics & Autonomous Systems

Distributed System & Software Design and Information Internetworks

Distributed System & Software Design and Computing Hardware & Emerging Architectures

Distributed System & Software Design and Devices

Cooperative Plan

The Georgia Tech Undergraduate Cooperative Education Program allows students to combine classroom study with paid practical work experience directly related to the academic major. Co-ops alternate semesters of on-campus study with semesters of full-time employment, normally beginning the program as freshmen or sophomores. Over 30 percent of ECE undergraduates participate in the co-op program.

The degree requirements for students in the co-op program are the same as those for other students in the major. The Cooperative Plan designation may be pursued separately or in combination with the International Plan and/or the Research Option.

Begun in 1912, Georgia Tech's program is currently the largest optional co-op program in the United States and has perennially been listed in U.S. News & World Report as one of the top ten co-op programs in America. As an integral part of the overall education experience, the co-op program allows students to take on increasing levels of responsibility and to use their job knowledge and classroom learning to make meaningful contributions to the organizations in which they work. Many co-op graduates are hired by their co-op employer, and more than 700 companies or government organizations throughout the United States and abroad currently employ Georgia Tech Undergrad Co-op Program students.

Because the School of ECE in Atlanta offers a wide range of electives and almost all required courses every term, including summer, co-op students have substantial flexibility in completing their degree requirements. Many students continue their co-op work assignments through the senior year. Additionally, co-op students working in the Atlanta area may be able to take certain ECE courses, particularly laboratories offered in the evening, during the work term.

In addition to the co-op program, the Center for Career Discovery and Development also offers the Undergraduate Professional Internship and Work Abroad programs. These programs also provide opportunities for students to gain practical work experience, without the long-term commitment of the co-op program.

Center for Career Discovery and Development

International Plan

The International Plan is intended for students who seek an intensive international experience integrated into their undergraduate studies in computer engineering. The International Plan develops global competence through a combination of coursework, language study, and residential overseas experience. Students who complete this option receive a designation on their transcript and diploma.

The computer engineering aspects of the BS CmpE - International Plan degree requirements are identical to those for the regular BS CmpE. Please refer to the BS CmpE catalog description for general information about the degree program. Students may be able to satisfy the additional requirements imposed for the International Plan designation through appropriate choices of electives without additional credit hours to complete the degree. The International Plan designation may be pursued separately, or in combination with the Cooperative Plan and/or the Research Option.

The School of Electrical and Computer Engineering offers a junior-year program at the Georgia Tech-Europe campus in Metz, France, that is designed to facilitate participation in the International Plan. However, computer engineering majors are not restricted to this option and may complete any allowable courses, languages, and overseas experiences that satisfy the International Plan requirements.

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 computer engineering. This option includes three or four semesters of structured research and provides an open evaluation of a student's research capabilities, viewable by the public via a required Web-based research portfolio. Students who complete this option receive a designation on their transcript.

The computer engineering aspects of the BS CmpE-Research Option degree requirements are identical to those for the regular BS CmpE. Please refer to the BS CmpE catalog description for general information about the degree program. Students may be able to satisfy the additional requirements imposed for the Research Option designation through appropriate choices of electives without additional credit hours to complete the degree. The Research Option designation may be pursued separately, or in combination with the Cooperative Plan and/or the International Plan.

The School of Electrical and Computer Engineering (ECE) offers a two-semester Undergraduate Research Opportunity Program (UROP), which may be completed to provide a less-intensive research experience or as the initial phase of the Research Option. Contact the ECE Academic Office for additional information about the Research Option, including specific Institute and ECE requirements, and assistance in planning your schedule to allow participation in this program.

BS/MS Electrical and Computer Engineering

This program allows highly qualified students to receive the Bachelor of Science in either Electrical Engineering or Computer Engineering and a master's degree in Electrical and Computer Engineering. The joint BS/MS degree program affords undergraduate electrical or computer engineering majors the opportunity to broaden their studies and improve their career prospects.

Eligible Georgia Tech undergraduates normally apply for this program during their junior year. Contact the Electrical and Computer Engineering Graduate Affairs Office for program information, eligibility requirements, and applications.

BSMS Information

Dual BS in Computer Engineering

Georgia Tech & Korea Advanced Institute of Science & Tech

Students may pursue the BSEE degree from the Korea Advanced Institute of Science and Technology (KAIST) as they earn the BSEE or BSCmpE from Georgia Tech. KAIST offers one of the top engineering programs in Korea and the Far East. All lectures at KAIST are given in English to better serve a growing number of students from overseas. While earning their dual degrees, students spend two years each at both Georgia Tech and KAIST.

BSMS Option

Undergraduate College of Engineering and Computer Science majors and Master of Science with a major in Management

This option is open to all undergraduate College of Engineering and Computer Science students. Students must submit a BSMS application meet admissions criteria to be considered for the option.

Students may double count up to 6 credit hours of letter-grade 4000-level College of Engineering (if COE major) or Computer Science (if CS major) courses towards electives in the Master of Science with a major in Management (MS-MGT) program. Course selection for double-counted 4000-level courses must be approved by the MS-MGT program advisor. Students must still complete the 12 credit hour MS-MGT core.

Students are encouraged to reach out to the Scheller College of Business for more information.