BACHELOR OF SCIENCE IN ELECTRICAL 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 EE program offers elective courses in a wide variety of specializations including analog electronics, bioengineering, computer engineering, systems and controls, microsystems and nanosystems, electronics packaging, digital signal processing, optics and photonics, electrical energy, electromagnetics, and telecommunications. Additionally, students may elect to take advanced courses in other programs such as computer science, mathematics, physics, or management.

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.

Any HUM (http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/core-area-c/) 3

Core D - Science, Math, & Technology

PHYS 2211 2,3
PHYS 2212 3
MATH 1551 Differential Calculus 3
MATH 1554 Linear Algebra 4

Core E - Social Sciences

Select one of the following:

HIST 2111 The United States to 1877
HIST 2112 The United States since 1877
INTA 1200 American Government in Comparative Perspective
POL 1101 Government of the United States
PUBP 3000 American Constitutional Issues

Select one of the following:

ECON 2100 Economic Analysis and Policy Problems
ECON 2101 The Global Economy
ECON 2105 Principles of Macroeconomics
ECON 2106 Principles of Microeconomics

Any SS (http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/core-area-e/) 3

Core F - Courses Related to Major

ECE 2020 Digital System Design 3
MATH 2551 Multivariable Calculus 3
MATH 2552 Differential Equations 3
CHEM 1310 General Chemistry 4
CHEM 1310 General Chemistry 4
CHEM 1310 General Chemistry 4
CHEM 1310 General Chemistry 4
CHEM 1211K

Science Elective 4

Ethics Requirement (http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/ethics/) 3

Probability/Statistics 3

Professional Communications 9

Major Requirements

ECE 2026 3
ECE 2031 3
ECE 2035 3
ECE 2036 3
ECE 2040 Circuit Analysis 3
ECE 3025 Electromagnetics 3
ECE 3040 Microelectronic Circuits 3
ECE 3043 3
ECE 3072 Electrical Energy Systems 3
ECE 3084 Signals and Systems 3
ECE 4011 ECE Culminating Design Project I 3
ECE 4012 ECE Culminating Design Project II 3

ECE Electives

Senior Lab Elective 3
ECE 3400-Level Electives 6.14

Non-ECE Engineering Electives

Electives 11,12,13

Approved Electives

Bachelor of Science in Electrical Engineering
International Plan and/or the Research Option. The Cooperative Plan designation may be pursued separately or in combination with the same as those for other students in the major. The Cooperative Plan is directly related to the academic major. Co-ops alternate semesters of the Georgia Tech Undergraduate Cooperative Education Program allows students to gain practical work experience, without the long-term 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 (http://www.careerdiscovery.gatech.edu/)

International Plan

The International Plan is intended for students who seek an intensive international experience integrated into their undergraduate studies in electrical 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 electrical engineering aspects of the BS EE - International Plan degree requirements are identical to those for the regular BS EE. Please refer to the BS EE 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-Lorraine campus in Metz, France, that is designed to facilitate participation in the International Plan. However, electrical engineering majors are not restricted to this option and may complete any allowable courses, languages, and overseas experiences that satisfy the International Plan requirements.

BS EE Description (https://www.ece.gatech.edu/current-students/undergraduate/international-programs/)
International Plan (http://www.internationalplan.gatech.edu)

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 electrical 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 electrical engineering aspects of the BS EE - Research Option degree requirements are identical to those for the regular BS EE. Please refer to the BS EE 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.

BS/MS Information (5 Year) (https://www.ece.gatech.edu/current-students/undergraduate/joint-bsms/)

Dual BS in Electrical Engineering

Georgia Tech & Korea Advanced Institute of Science and 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.