

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING - SIGNAL & INFORMATION PROCESSING AND BIOENGINEERING

| Code | Title | Credit Hours |
|---|--|--------------|
| Wellness | | |
| APPH 1040 | Scientific Foundations of Health | 2 |
| | or APPH 10 The Science of Physical Activity and Health | |
| | or APPH 10 Flourishing: Strategies for Well-being and Resilience | |
| Core A - Essential Skills | | |
| ENGL 1101 | English Composition I | 3 |
| ENGL 1102 | English Composition II | 3 |
| MATH 1552 | Integral Calculus ² | 4 |
| Core B - Institutional Options | | |
| CS 1301 | Introduction to Computing ² | 3 |
| Core C - Humanities | | |
| Any HUM ¹ | | 6 |
| Core D - Science, Math, & Technology | | |
| PHYS 2211 | Introductory Physics I ² | 4 |
| PHYS 2212 | Introductory Physics II ² | 4 |
| MATH 1551 | Differential Calculus ² | 2 |
| MATH 1554 | Linear Algebra ² | 4 |
| Core E - Social Sciences | | |
| Select one of the following: | | 3 |
| 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: | | 3 |
| ECON 2100 | Economic Analysis and Policy Problems | |
| ECON 2101 | The Global Economy | |
| ECON 2105 | Principles of Macroeconomics | |
| ECON 2106 | Principles of Microeconomics | |
| Any SS ¹ | | 6 |
| Core F - Courses Related to Major | | |
| MATH 2551 | Multivariable Calculus ² | 4 |
| MATH 2552 | Differential Equations ² | 4 |
| CHEM 1310 | Principles of General Chemistry for Engineers | 4 |
| | or CHEM 12 Chemical Principles I | |
| Science Elective ³ | | 3 |
| Ethics Requirement ¹ | | |
| Probability/Statistics ^{6,10} | | 3 |
| Major Requirements | | |
| ECE 1100 | ECE Discovery Studio | 1 |

| | | |
|---|--|------------|
| ECE 2020 | Digital System Design ² | 3 |
| ECE 2026 | Introduction to Signal Processing ² | 3 |
| ECE 2031 | Digital Design Laboratory ² | 2 |
| ECE 2035 | Programming for Hardware/Software Systems ² | 4 |
| | or ECE 2036 Engineering Software Design | |
| ECE 2040 | Circuit Analysis ² | 3 |
| ECE 3005 | Professional and Technical Communications for ECE | 1 |
| ECE 3025 | Electromagnetics ² | 3 |
| ECE 3040 | Microelectronic Circuits ² | 4 |
| ECE 3043 | Measurements, Circuits, and Microelectronics Laboratory ² | 2 |
| Bioengineering | | |
| Select one of the following: ^{2,8} | | 3 |
| ECE 4781 | Biomedical Instrumentation ³ | |
| ECE 4782 | Biosystems Analysis ³ | |
| ECE 4784 | Engineering Electrophysiology ³ | |
| Select two of the following: ^{2,8} | | 6 |
| ECE 3084 | Signals and Systems | |
| ECE 4350 | Electromagnetic and Microwave Applications | |
| ECE 4370 | Antenna Engineering | |
| ECE 4435 | Operational Amplifier Design | |
| ECE 4781 | Biomedical Instrumentation | |
| ECE 4782 | Biosystems Analysis | |
| ECE 4784 | Engineering Electrophysiology | |
| Bioengineering Electives | | |
| ECE 3000/4000 Elective ⁴ | | 3 |
| Signal & Information Processing¹⁰ | | |
| Select one of the following: ^{2,8} | | 3 |
| ECE 3251 | Optimization for Information Systems | |
| ECE 4270 | Fundamentals of Digital Signal Processing | |
| Select two of the following: ^{2,8} | | 6 |
| ECE 3084 | Signals and Systems | |
| ECE 3251 | Optimization for Information Systems | |
| ECE 4122 | Advanced Programming Techniques for Engineering Applications | |
| ECE 4180 | Embedded Systems Design | |
| ECE 4260 | Random Signals and Applications | |
| ECE 4270 | Fundamentals of Digital Signal Processing | |
| ECE 4271 | Applications of Digital Signal Processing | |
| ECE 4273 | Design Synthesis of Application-specific Signal Processors | |
| ECE 4783 | Introduction to Medical Image Processing | |
| Signal & Information Processing Electives | | |
| ECE 3000/4000-level Elective ⁴ | | 3 |
| Culminating Senior Design Options (Capstone) | | |
| Culminating Senior Design ⁷ | | 3 |
| Free Electives^{5,9} | | |
| Total Credit Hours | | |
| | | 129 |
| Pass-fail only allowed for Humanities Electives, Social Sciences Electives, Free Electives, ECE 1100, and ECE 3005. | | |

Courses that are cross-listed with ECE must be taken under the ECE number.

¹ Students must complete one Ethics course during their program. For a complete list of Ethics courses, please click here.

² Minimum grade of C required.

³ Please select any academic course from the Schools of Biological Sciences, Chemistry, Earth and Atmospheric Sciences, or Physics. Research credits may not apply to this requirement.

⁴ ECE electives are subject to School approval and must satisfy the following constraints:

1. All ECE courses at the 3000-level or higher, including approved special topics course. Exclusions: Junior Design Fundamentals Course (prerequisite for single-semester capstone) and ECE 3077 (used to satisfy Probability and Statistics requirement).
2. Special problems, undergraduate research, and similar courses may not be included, except for three credit hours for one ECE Undergraduate Research sequence, either ECE 3951+ ECE 3952 or ECE 4951+ ECE 4952. For students completing the Research Option but not an ECE UROP sequence, three credit hours for ECE 4699 may be included.

⁵ The following courses are not allowed: ECE 3710, ECE 3741, HPS 1XXX, LMC 2661, LMC 2662, LMC 3661, LMC 3662, MATH 1113, and PHYS 2XXX (AP Credit). Maximum of six credit hours of Special Problems or research may be applied toward the degree

⁶ CEE 3770 or ISYE 3770 or MATH 3670 or ECE 3077 (must be taken for Letter Grade basis)

⁷ Senior Design requirements may be satisfied in the following ways:

1. ECE two semester 4000 level ECE Culminating Design I + ECE Culminating Design II
2. Approved single-semester capstone (requires completion of the prerequisite ECE Design Fundamentals junior course, which counts as a free elective)

NOTE: Students may be able to use a VIP project in one of the above options to satisfy Senior Design provided they meet the requirements as outlined at the following VIP page. (see <https://vip.gatech.edu/how-vip-credits-count>)

⁸ No single course may be used to satisfy requirements in both selected threads.

1. If a course is **required** in both threads, it must be satisfactorily completed once and the second occurrence shall be replaced by an equivalent number of ECE 3000/4000 elective hours (excluding courses used to satisfy senior design or probability & statistics requirements).
2. If a course is **required** in one thread and **optional** (elective or pick list) in the second thread, it must be completed as required and may not be used to satisfy any element of the second thread.
3. If a course is **optional** (elective or pick list) in both threads, it may be counted once toward either thread, but not toward both.

⁹ The total number of available free elective hours will depend on choices made in the thread as well as the choice to fulfill Senior Design requirements according to note (7)

¹⁰ Hours satisfying Probability & Statistics requirement and threads requirements may share with minor requirements.