BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING - ROBOTICS & AUTONOMOUS SYSTEMS AND ELECTRIC ENERGY SYSTEMS

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	General Chemistry	4
or CHEM 12	Chemical Principles I	
Science Elective [4]		3
Ethics Requirement [1]		
Probability/Statistics [6]		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
Electric Energy Systems		
ECE 3072	Electrical Energy Systems	3
ECE 3300	Electromechanical and Electromagnetic Energy Conversion	3
Select one of the following: [2,8]		3
ECE 4320	Power System Analysis and Control	
ECE 4321	Power System Engineering	
ECE 4325	Electric Power Quality	
ECE 4330	Power Electronics	
ECE 4335	Electric Machinery Analysis	
Electric Energy Systems Electives		
ECE 3000/4000-level Elective [4]		3
Robotics & Autonomous Systems		
ECE 4550	Control System Design	4
ECE 3550	Feedback Control Systems	3
Select one of the following: [2,8]		3
ECE 3084	Signals and Systems	
ECE 4560	Introduction to Automation and Robotics	
ECE 4570	System Theory for Communication and Control	
ECE 4580	Computational Computer Vision	
Robotics & Autonomous Systems Electives		
ECE 3000/4000-level Elective [4]		3
Culminating Senior Design Options (Capstone)		
Culminating Senior Design [7]		3
Free Electives [5,9]		**10**
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)