

Bachelor of Science in Computer Engineering (CmpE) Degree Requirements

Institute Core (57 Hours)		
Notes	Course Hours	Description
	3-3-4	CHEM 1310 – General Chemistry (or CHEM 1211K)
	3-0-3	CS 1301 –Intro to Computing
	8-0-8	MATH 1551, 1552, 2550 –Differential, Integral, Multiv. Calc
	4-0-4	MATH 1554 – Linear Algebra
	4-0-4	MATH 2552 – Differential Equations
	6-6-8	PHYS 2211, 2212 – Introductory Physics I, II
5	2-0-2	APPH 1040/1050 – Wellness
	6-0-6	ENGL 1101, 1102 – English Composition I, II
4,5	6-0-6	Humanities electives
1,5	3-0-3	History/Government elective
2	3-0-3	Economics elective
4,5	6-0-6	Social Sciences electives

Elective Hours (Hours Vary Depending on Thread Combinations)		
10	3-0-3	Probability & Statistics Course
9	Varies	ECE Senior Design Sequence
3	Varies	Approved Electives

CmpE Common Core (27 Hours)		
Notes	Course Hours	Description
	1-0-1	ECE 1100 – ECE Discovery Studio
	3-0-3	CS 1331 - Introduction to Object-Oriented Programming
	3-0-3	CS 1332 - Data Structures and Algorithms
	3-0-3	CS 2050 or CS 2051 - Introduction to Discrete Math for CS
	3-0-3	ECE 2020 – Fundamentals of Digital System Design
	1-3-2	ECE 2031 – Digital Design Laboratory
	3-3-4	ECE 2035 – Programming HW/SW systems
	3-0-3	ECE 2040 – Circuit Analysis
	1-0-1	ECE 3005 – Professional Communication
	3-3-4	ECE 3058 – Architecture, Concurrency and Energy in Computation

THREAD COMBINATIONS: (2 CmpE) OR (1 CMPE and1 EE), OR (1 CmpE and 1 CS)		
CmpE Threads – Choose ONE or TWO of the following threads		
CmpE Computing Hardware & Novel Architectures (Thread)		
Notes	Course Hours	Description
8	3-3-4	ECE 3150 - VLSI & Adv Digital Design
8	3-0-3	ECE 3030 – Physical Found. of Computer Engineering
7,8	Varies	Pick 1 of Embedded Systems
7,8	Varies	Pick 1 of Integration, Devices, & Fabrication
7,8	Varies	Pick 1 of Computer Architecture
CmpE Distributed System & Software Design (Thread)		
Notes	Course Hours	Description
8	3-0-3	CS 3251 - Computer Networking
7,8	Varies	Pick 1 of Advanced Software
7,8	Varies	Pick 2 of Edge, Cloud, and Mobile Apps
CmpE CyberSecurity (Thread)		
Notes	Course Hours	Description

8	3-0-3	CS 3251 - Computer Networking
8	3-3-4	ECE 4115 - Introduction to Computer Security
7,8	Varies	Pick 2 of Cybersecurity topics
EE Threads (Choose ONE if only one CmpE thread chosen above)		
EE Signal & Information Processing (Thread)		
Notes	Course Hours	Description
	2-3-3	ECE2026 – Intro to Signal Processing
8	3-0-3	ECE 3084 - Signals and Systems
8	3-0-3	ECE 4270 - Fundamentals of DSP
7,8	Varies	Thread Pick
6	Varies	ECE 3000/4000 Elective
EE Telecommunications (Thread)		
Notes	Course Hours	Description
	2-3-3	ECE2026 – Intro to Signal Processing
8	3-0-3	ECE 3600 – Computer Communications OR CS 3251 – Computer Networking
8	3-0-3	ECE 4601 – Communication Systems OR ECE 4606 – Wireless Communications
7	Varies	Thread Pick
6	Varies	ECE 3000/4000 Elective
EE Robotics (Thread)		
Notes	Course Hours	Description
	2-3-3	ECE2026 – Intro to Signal Processing
8	3-0-3	ECE 3550 - Feedback Control Systems
8	3-3-4	ECE 4550 - Control System Design
7,8	Varies	Thread Pick
6	Varies	ECE 3000/4000 Elective
CS Threads – (Choose ONE if only ONE CmpE thread chosen from above list)		
CS Devices (Thread)		
Notes	Course Hours	Description
8	3-0-3	CS 2340 - Objects and Design
8	3-0-3	CS 3251 - Computer Networking
8	3-0-3	CS 3510 or CS 3511 - Design and Analysis of Algorithms
7,8	3-3-4	Pick 1 of Building Devices
7,8	3-0-3	Pick 1 of Devices in the Real World
CS Systems & Architecture (Thread)		
Notes	Course Hours	Description
8	3-0-3	CS 2340 - Objects and Design
8	3-0-3	CS 3210 - Design of Operating Systems
8	3-0-3	CS 3220 - Computer Structures: HW/SW Codesign of a Processor
8	3-0-3	CS 3510 or CS 3511 - Design and Analysis of Algorithms
7,8	3-3-4	Pick 1 of Systems Software Tools
7,8	3-0-3	Pick 1 of Advanced Systems & Architecture
CS Information Internetworks (Thread)		
Notes	Course Hours	Description
8	3-0-3	CS 2340 - Objects and Design
8	3-0-3	CS 3510 or CS 3511 Design and Analysis of Algorithms
7,8	6-0-6	Pick 2 from Introduction to Information Management
7,8	3-0-3	Pick 1 from Advanced Information Management
	X-X-129	Total Hours for the CMPE Degree

Bachelor of Science in Computer Engineering (BSCMPE) Degree Requirements

Notes:

1. HIST 2111, HIST 2112, POL 1101, PUBP 3000, or INTA 1200.
2. ECON 2100, ECON 2101, ECON 2105, or ECON 2106.
3. Approved electives include courses (or excess hours) in ECE, other engineering, math, sciences, computing, management, humanities, social sciences, and ROTC. All other courses must be approved by the School. The number of approved electives will vary based on the choices for threads and senior design. Students should consult the study plans for each thread combination for better insight on the amount of approved elective hours available.
4. An approved ethics course must be included in the elective hours. Approved courses include the list maintained at www.catalog.gatech.edu/students/ugrad/core/ethics.php plus CS 4002.
5. Courses used to satisfy these requirements may be taken on a pass-fail basis, subject to Institute limits. Courses used to satisfy other requirements may not be taken pass-fail, unless offered only on that basis.
6. ECE 3000/4000 Electives are subject to School approval and must satisfy the following constraints:
 - a. All courses at the 3000-level or higher, including ECE 38XX and ECE 48XX. Exclusions: Junior Design Fundamentals Course (prerequisite for single-semester capstone) and ECE3077 (used to satisfy Probability and Statistics requirement).
 - b. 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+3952 or ECE 4951+4952. For students completing the Research Option but not an ECE UROP sequence, three credit hours for ECE 4699 may be included.
7. Approved ECE Special Topics courses may count as credit towards a specific thread pick. Check with advising office.
8. Shared courses among threads:
 - a. In cases where two threads have the same pick, credit will be awarded to only one of the threads and the student will be required to choose a different course for the pick in the other thread.
 - b. In cases where two threads share a required course, the student will substitute an ECE/CS elective as appropriate to the thread.
9. Senior Design requirements may be satisfied in the following ways:
 - a. ECE two semester 4000 level ECE Culminating Design I + ECE Culminating Design II
 - b. Approved single-semester capstone (requires completion of the prerequisite ECE Design Fundamentals junior course, which counts as a free elective)
 - c. 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. (<https://www.vip.gatech.edu/how-vip-credits-count>)
10. CEE 3770 or ISYE 3770 or MATH 3670 or ECE 3077 (Must be taken on Letter/Grade basis)

Additional Requirements:

- A grade of "C" or better is required in (a) all ECE and CS common and thread courses, (b) CS 1301, (c) MATH 1551, 1552, 1554, 2550, 2552, and (d) PHYS 2211, 2212. A student who does not receive a grade of "C" or better in one of these courses must repeat the course and satisfy the requirement prior to enrolling in follow-on courses.
- A maximum of six credit hours of special problems, undergraduate research, and/or similar courses may be applied toward the degree as elective hours. However, if the Research Option is completed, up to nine credit hours may be applied toward the degree.
- Courses that are cross-listed with ECE must be taken under the ECE number.
- In cases where two threads have the same course, credit can only be awarded to one of the threads and the student will be required to choose an ECE/CS 3000/4000 level course that will apply to the overall elective hours.
- Credit is not allowed for courses that substantially duplicate material from other completed courses.