

## School of Electrical and Computer Engineering Projected Schedule of Undergraduate Courses

The following table lists the ECE undergraduate courses currently projected to be offered at the Atlanta campus and through the video/internet distance education program. Classes taught at GT-Lorraine, GT-Shenzhen, or as part of study abroad programs are not listed.

The projected schedule of classes is normally updated each year during summer semester. The projected schedule for the coming year (2018-19) is fairly certain; changes will be reflected in the registration schedule for each term. The projected schedule for 2019-20 is preliminary and is likely to be modified significantly in summer 2019.

Additionally, summer schedules are subject to changes in student enrollment, budgets, and/or faculty availability. Based on previous years' schedules, the School is likely to offer most core courses and, possibly, some senior electives. Note that the required culminating design course, ECE 4012, is not offered in summer terms.

**X** = course scheduled to be offered

**?** = course may be offered in this term, based on prior years' schedules

**ST** = special topic course (offered as ECE 38xx or ECE 48xx)

**video** = course offered via video/internet in addition to on-campus section

**altvid** = course normally offered via video/internet in alternate years; not offered via

Core Courses	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 2020 - Fund of Digital System Design	3-0-3	X	X	X	X	X
ECE 2026 - Intro to Signal Processing	2-3-3	X	X	X	X	X
ECE 2031 - Digital Design Lab	1-3-2	X	X	X	X	X
ECE 2035 - Programming for HW/SW Sys	3-3-4	X	X	X	X	X
ECE 2036 - Engineering Software Design	3-3-4	X	X	X	X	X
ECE 2040 - Circuit Analysis	3-0-3	X	X	X	X	X
ECE 3005 - Prof & Tech Commun for ECE	1-0-1	X	X	X	X	X
ECE 3006 - Co-curricular Prof Commun for ECE	0-0-0	X	X	X	X	X
ECE 3020 - Mathematical Foundations of Computer Engineering	3-0-3	X	X	X	X	X
ECE 3025 - Electromagnetics	3-0-3	X	X	X	X	X
ECE 3030 - Physical Foundations of Computer Engineering	3-0-3	X	X	X	X	X
ECE 3040 - Microelectronic Circuits	4-0-4	X	X	X	X	X
ECE 3043 - Measur, Circuits, & Microelec Lab	1-3-2	X	X	X	X	X
ECE 3056 - Architecture, Concurr, Energy in Comput	3-0-3	X	X	X	X	X
ECE 3072 - Energy Systems	2-3-3	X	X	X	X	X
ECE 3077 - Probability & Statistics for ECE	3-0-3	X	X	X	X	X
ECE 3084 - Signals and Systems	3-0-3	X	X	X	X	X
ECE 4043 - Senior Analog Electronics Lab	1-3-2	X	X	X	X	X

Major Design Courses	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 4011 - ECE Culminating Design Proj I	2-0-2	X	X	X	X	X
ECE 4012 - ECE Culminating Design Proj II	1-6-3	X	X		X	X

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### UNDERGRADUATE ELECTIVES

**NOTE: Electives approved as breadth courses for EE majors graduating under the 2011-12 and earlier curricula.**

<b>Bioengineering</b>	<b>Credits</b>	<b>Fall 2018</b>	<b>Spring 2019</b>	<b>Summer 2019</b>	<b>Fall 2019</b>	<b>Spring 2020</b>
ECE 1750 - Intro to Bioengineering <i>(Cross-listed with BMED/CHBE/ME/MSE 1750)</i>	3-0-3					
ECE 4781 - Biomedical Instrumentation <i>(Cross-listed with CHBE/ME 4781)</i>	3-0-3	X			X	
ECE 4782 - Biosystems Analysis <i>(Cross-listed with CHBE/ME 4782)</i>	3-0-3		X			X
ECE 4783 - Intro. Medical Imaging Processing <i>(Cross-listed with BMED 4783)</i>	3-0-3				X	
ECE 4784 - Engineering Electrophysiology <i>(Cross-listed with BMED 4784)</i>	3-0-3	X			X	
ECE 4803 - Implantable Microelectronic Devices <i>(Cross-listed with ECE 8803)</i>	3-0-3				ST	
<b>Computer Systems and Software (previously part of Computer Engineering)</b>						
<b>Credits</b>	<b>Fall 2018</b>	<b>Spring 2019</b>	<b>Summer 2019</b>	<b>Fall 2019</b>	<b>Spring 2020</b>	
ECE 4100 - Advanced Computer Architecture	3-0-3	X	X		X	X
ECE 4110 - Internetwork Programming	3-3-4					
ECE 4115 - Intro to Computer Security	3-3-4	X			X	
ECE 4122 - Advanced Programming Techniques for Engineering Applications <i>(Cross-listed with ECE 6122)</i>	2-3-3	X			X	
ECE 4150 - Cloud Computing	3-0-3	X				
ECE 4180 - Embedded Systems Design	3-3-4	X	X		X	X
Multicore and GPU Programming for Video Games <i>(Jointly taught with CS)</i>	2-3-3					
ECE 4833- Advanced Topics in Malware Analysis	3-0-3	ST			ST	
ECE 4894 - Intro to Malware Reverse Engineering	3-3-4		ST			ST
<b>Digital Signal Processing</b>						
<b>Credits</b>	<b>Fall 2018</b>	<b>Spring 2019</b>	<b>Summer 2019</b>	<b>Fall 2019</b>	<b>Spring 2020</b>	
ECE 4260 - Random Signals and Applications	3-0-3		X			X
ECE 4270 - Fundamentals of Digital Signal Proc	3-0-3	X	X			X
ECE 4271 - Applications of Digital Signal Processing	3-3-4		X			X
ECE 48XX - Introduction to Data Science	3-0-3					
<b>Electrical Energy</b>						
<b>Credits</b>	<b>Fall 2018</b>	<b>Spring 2019</b>	<b>Summer 2019</b>	<b>Fall 2019</b>	<b>Spring 2020</b>	
ECE 3300 - Energy Conversion	3-0-3	X	X		X	X
ECE 4320 - Power System Analysis & Control	3-0-3	X			X	
ECE 4321 - Power System Engineering	3-0-3		X			X
ECE 4330 - Power Electronics	2-2-3		X			X
ECE 4335 - Electric Machinery Analysis	3-0-3		X			

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Electromagnetics	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 4350 - Electromagnetic & Microwave Appl	3-0-3	X	X		X	X
ECE 4370 - Antenna Engineering	3-0-3	X			X	
ECE 4371 - Antenna Engineering Lab (must be taken concurrently with 4370)	0-3-1	X			X	
ECE 4390 - Intro to Radar & Electromagnetic Sensing	3-0-3		X			X
ECE 4391 - Electromagnetic Compatibility	3-0-3			X		
Electronic Design & Applications	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 3400 - Analog Electronics	3-0-3	X	X		X	X
ECE 4418 - RF Engineering II	3-0-3		X			X
ECE 4420 - Digital Integrated Circuits	3-0-3					
ECE 4430 - Analog Integrated Circuits	3-0-3	X			X	
ECE 4435 - Operational Amplifier Design	2-3-3		X			X
ECE 4445 - Audio Engineering	3-0-3	X			X	
ECE 4446 - Audio Engineering Laboratory	0-3-1	X			X	
ECE 4450 - Analog Circuits for Music Synthesis	2-3-3					
ECE 4803 - Guitar Amplification and Effects	2-3-3		ST			
ECE 4803 - Energy and Power Microelectronics	3-0-3					
Nanotechnology	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 3450 - Semiconductor Devices	3-0-3	X	X		X	
ECE 4452 - Integrated Circuit Fabrication (Formerly ECE 4752)	2-3-3	X	X	X	X	X
ECE 4460 - Intro to Electronic Systems Packaging	3-0-3		X			
ECE 4754 - Electronics Packaging Assembly, Reliability, Thermal Management, and Test (Cross-listed with ME/MSE 4754)	1-6-3		X			
ECE 4755 - Package Substrate Fabrication (Cross-listed with CHBE/MSE 4755)	1-6-3	X				
ECE 4803 - Devices for Renewable Energy	3-0-3		ST			ST
Optics and Photonics	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 4500 - Optical Engineering	3-0-3	X			X	
ECE 4502 - Optical Fiber Communications (Formerly ECE 4501)	3-3-4		X			X
ECE 4751 - Laser Theory and Applications	3-0-3		X	X		
Systems and Controls	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 3550 - Feedback Control Systems	3-0-3	X	X	X	X	X
ECE 4550 - Control System Design	3-3-4	X	X	X	X	X
ECE 4560 - Intro to Automation and Robotics	3-3-4	X			X	
ECE 4570 - System Theory for Commun & Control	3-3-4		X			
ECE 4575 - Numerical Methods for Optimization and Optimal Control	3-0-3					X
ECE 4580 - Computational Computer Vision	3-0-3					X
Numerical Meth for Optimization & Optimal Cntrl	3-0-3					

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Telecommunications	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 3600 - Computer Communications	3-0-3		X		X	X
ECE 4601 - Communication Systems	3-0-3		X			X
ECE 4605 - Advanced Internetworking	3-3-4	X				
ECE 4606 - Wireless Communications	3-0-3	X			X	
ECE 4607 - Mobile and Wireless Networks	3-0-3					
ECE 4612 - Telecom Systems Lab (formerly ECE 4602)	0-3-1					
VLSI Systems and Digital Design (previously part of Computer Engineering)	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 3150 - VLSI & Adv Digital Design	3-3-4		X			X
ECE 4130 - Advanced VLSI Systems	3-3-4	X			X	
ECE 4181 - Embedded Computing Systems	3-3-4	X				
ECE 3884/4884 - Hardware Oriented Security and Trust	3-3-4	ST				ST
Low Power IoT Systems	3-3-4				ST	
School-Wide Electives	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 2001 - ECE Seminar	1-0-1	X			X	
ECE 2002 - ECE Seminar	1-0-1		X			X
COE 3002 - Intro Microelec & Nanotech Revolution	3-0-3	restricted section				
GT 1000 - GT Freshman Seminar	1-0-1	X			X	
ECE 2801 - Transition Skills for Transfer Students	1-0-1	ST			ST	
ECE 2881 - Practical Skills and Design	0-3-1	ST	ST		ST	ST
ECE 4802 - Research Methods	2-0-2		X			X
Vertically Integrated Projects Program	varies	X	X		X	X
Service Courses (non-ECE majors)	Credits	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020
ECE 3710 - Circuits & Electronics	2-0-2	X	X	X	X	X
ECE 3741 - Instrumentation & Electronics Lab	0-3-1	X	X	X	X	X