ECE Curriculum Pre-reqs and Co-reqs

ECE courses	Name	Pre-requisites	Co-requisites	Pre-requisites or Concurrent enrollment
1010	Robots in Business and Society			
1990	Creative Inquiry in Electrical and Computer Engineering	Consent of Instructor		
2000	Introduction to Electrical and Computer Engineering	ENGR 1020 or ENGR 1060 or ENGR 1510		
2010	Logic and Computing Devices	Sophomore Standing		
2020	Electric Circuits I	MATH 1080		PHYS 2210
2040	Circuit Analysis Problems I			ECE 2020
2070	Basic Electrical Engineering	MATH 2060, PHYS 2210		
2080	Basic Electrical Engineering Laboratory			ECE 2070
2090	Logic and Computing Devices Laboratory	ECE 2010		ECE 2720
2110	Electric Circuits I Laboratory			ECE 2020
2120	Electric Circuits II Laboratory	ECE 2020, ECE 2110		ECE 2620
2210	Python Programming for Electrical and Computer Engineering	ENGR 1020 or ENGR 1050 or ENGR 1510		
2220	C and Unix Programming for Electrical and Computer Engineering	ECE 2210		
2230	Data Structures and Algorithms for Electrical and Computer Engineering	ECE 2220		
2620	Electric Circuits II	ECE 2020, MATH 2060, PHYS 2210		
2630	Circuit Analysis Problems II			ECE 2620, MATH 2080
2720	Computer Organization	ECE 2010, ECE 2210		
2730	Computer Organization Laboratory			ECE 2720
2990	Creative Inquiry in Electrical and Computer Engineering	Consent of Instructor		
3000	Junior Honors Seminar	Enrollment in Departmental Honors Program		
3080	Fundamentals of Electrical Engineering	MATH 2060, PHYS 2210		
3110	Electronics I Laboratory	ECE 2120, ECE 2620, MATH 2080, PHYS 2210		ECE 3200
3120	Electronics II Laboratory	ECE 3110, ECE 3200		ECE 3210
3170	Random Signal Analysis	ECE 2620, MATH 2080		ECE 3300
3200	Electronics I	ECE 2620, MATH 2080, PHYS 2210		
3210	Electronics II	ECE 3200		
3220	Introduction to Operating Systems	ECE 2230, ECE 2720		
3270	Digital Computer Design	ECE 3710	ECE 3271	
3271	Digital Computer Design Laboratory		ECE 3270	
3290	Computer Systems Structures	ECE 2230, ECE 2720		
3300	Signals, Systems, and Transforms	ECE 2620, MATH 2080		
3520	Programming Systems	ECE 2230		MATH 4190
3600	Electric Power Engineering	ECE 2620, PHYS 2210		
3710	Microcontroller Interfacing	ECE 2220, ECE 2720		ECE 2620
3720	Microcontroller Interfacing Lab			ECE 3710
3800	Electromagnetics	ECE 2020, MATH 2060, PHYS 2210		ECE 2620
3810	Fields, Waves, and Circuits	ECE 2620, ECE 3800, MATH 2080		
3990	Creative Inquiry in Electrical and Computer Engineering	Consent of Instructor		
4040	Semiconductor Devices	ECE 3200		
4050	Design Projects in ECE	ECE 3300 *or* 4090, consent of project supervisor		
4060	Introduction to Microelectronics Processing	ECE 3200		
4080	Silicon Photonic Integrated Circuits	ECE 3200, ECE 3800		
4090	Introduction to Linear Control Systems	ECE 3300		
4100	Industrial Control and Automation	ECE 4090		
4120	Electrical Machines Lab			ECE 3600
4160	Smart Grid	SR Standing		
4170	Elements of Software Engineering	ECE 3220, ECE 3520, MATH 4190		
4180	Power System Analysis	ECE 3600, ECE 3800		
4190	Electric Machines and Drives	ECE 3210, ECE 3600, ECE 3800		
4200	Renewable Energy Penetration on the Power Grid	ECE 2070 *or* ECE 3200		
4210	Fundamentals of Power Electronics	ECE 2620, ECE 3600		
4220	Electronic System Design	ECE 3210, ECE 3300, ECE 3600, ECE 3710, ECE 3810	ECE 4221	
4221	Electric System Design 1 Lab		ECE 4220	
4270	Communications Systems	ECE 3170, ECE 3300		
4290	Organization of Computers	ECE 2720		
4300	Digital Communications	ECE 3170, ECE 3300, consent of instructor *consent not required for honors students*		
4310	Introduction to Computer Vision	ECE 2230		

ECE Curriculum Pre-reqs and Co-reqs

ECE courses	Name	Pre-requisites	Co-requisites	Pre-requisites or Concurrent enrollment
4320	Instrumentation	ECE 3210		
4330	Optical Fiber Communication Systems	ECE 3300, ECE 3800		
4340	Optoelectronics and Photonics	ECE 3810		
4350	Electromagnetic Compatability	ECE 3810		
4360	Microwave Circuits	ECE 3810		
4370	Microelectromechanical Systems	CH 1020, PHYS 1220, SR standing		
4380	Computer Communications	Senior standing in EE *or* CpE *or* CPSC		
4390	Fiber Optics	ECE 3810		
4400	Performance Analysis of Local Computer Networks	ECE 2720, ECE 3170		
4420	Knowledge Engineering	ECE 3170 *or* MATH 4000 *or* STAT 3090		
4460	Antennas and Propagation	ECE 3300, ECE 3810		
4490	Computer Network Security	Senior standing in EE or CpE	ECE 4491	
4491	Computer Network Security Laboratory		ECE 4490	
4530	Software Practicum	ECE 3220, ECE 3520	ECE 4531	
4531	Software Practicum Laboratory		ECE 4530	
4550	Robot Manipulators	MATH 2080, PHYS 1220, SR standing		
4570	Fundamentals of Wind Power	ECE 2070 *or* ECE 3200		
4580	Algorighms for VLSI Design Automation	ECE 3200		
4590	Integrated Circuit Design	ECE 3200	ECE 4591	
4591	Integrated Circuit Design Lab		ECE 4590	
4600	Computer-Aided Analysis and Design	ECE 2620		
4610	Fundamentals of Solar Energy	ECE 3200		
4670	Introduction to Digital Signal Processing	ECE 3300		
4680	Embedded Computing	ECE 2230, ECE 3710	ECE 4681	
4681	Embedded Computing Laboratory		ECE 4680	
4700	Vehicle Electronics	ECE 3200		
4710	Electrification of Transportation	JR standing		
4730	Introduction to Parallel Systems	ECE 3220 *or* ECE 3290		
4740	Fault Tolerance and Reliability in High-Performance Computing	ECE 3220 *or* ECE 3290; ECE 4730 recommended		
4780	General Purpose Computation on Graphical Processing Units	ECE 2230		
4910	Undergraduate Honors Research	Consent of Instructor and enrollment in Departmental Honors program **may be repeated for max of 6 cr**		
4920	Special Problems	Consent of Instructor **may take only once for credit**		
4930	Selected Topics	Consent of Instructor *may be repeated for max of 6 cr if diff topics covered*		
4950	Integrated System Design I	**EE**: ECE 2220, ECE 3200, ECE 3300, ECE 3800 **CPE**: ECE 2230, ECE 3200, ECE 3300, ECE 3710	ECE 4951	ECE 4090
4951	Integrated Systgem Design I Laboratory		ECE 4950	
4960	Integrated System Design II	**EE**: ECE 2000, ECE 3210, ECE 3600, ECE 3710, ECE 3810, ECE 4090, ECE 4950 **CPE**: ECE 2000, ECE 3220, ECE 3270, ECE 3520, ECE 4090, ECE 4950		
4980	Research in Electrification of Transportation	Consent of Instructor *may be repeated for max of 8 cr only*		
4990	Creative Inquiry in Electrical and Computer Engineering	Consent of Instructor		

MATH courses	Name	Pre-requisites	Co-requisites	Pre-requisites or Concurrent enrollment
MATH 1040	Precalculus and Elementary Differential Calculus	SAT Math >= 640 *or* ACT Math >= 27 *or* CMPT >= 65 *or* any MATH or STAT course		
MATH 1060	Calculus of One Variable I	SAT Math >= 680 *or* ACT Math >= 29 *or* CMPT >= 80		
MATH 1070	Differential and Integral Calculus	MATH 1040		
MATH 1080	Calculus of One Variable II	MATH 1060 *or* MATH 1070		
MATH 2060	Calculus of Several Variables	MATH 1080 *or* MATH 1110		
MATH 2080	Introduction to Ordinary Differential Equations	MATH 2060		
MATH 3020	Statistics for Science and Engineering	MATH 2060		
MATH 3110	Linear Algebra	MATH 1080 *or* MATH 1110		
MATH 3650	Numerical Methods for Engineers	ENGR 1090 *or* ENGR 1410 and MATH 2080		
MATH 4190	Discrete Mathematical Structures I	MATH 3110		
MATH 4340	Advanced Engineering Mathematics	MATH 2080		
MATH 4400	Linear Programming	MATH 2060, MATH 3110		

ECE Curriculum Pre-reqs and Co-reqs

ECE courses	Name	Pre-requisites	Co-requisites	Pre-requisites or Concurrent enrollment
MATH 4410	Introduction to Stochastic Models	ECE 3170 or MATH 4000		
Other Courses	**Name**	**Pre-requisites**	**Co-requisites**	**Pre-requisites or Concurrent enrollment**
CH 1010	General Chemistry		CH 1011	
CH 1011	General Chemistry Laboratory		CH 1010	
CH 1020	General Chemistry	CH 1010	CH 1021	
CH 1021	General Chemistry Laboratory		CH 1020	
ENGR 1020	Engineering Disciplines and Skills	SAT Math >= 640 *or* ACT Math >= 27 *or* CMPT >= 65 *or* MATH 1040 *or* MATH 1060 *or* MATH 1080 *or* MATH 2060 *or* MATH 2080 (concurrent enrollment is allowed)	ENGR 1021	
ENGR 1021	Engineering Disciplines and Skills Laboratory		ENGR 1020	
ENGR 1050	Engineering Disciplines and Skills I	SAT Math >= 640 *or* ACT Math >= 27 *or* CMPT >= 65 *or* MATH 1040 *or* MATH 1060 *or* MATH 1080 *or* MATH 2060 *or* MATH 2080 (concurrent enrollment is allowed)		
ENGR 1060	Engineering Disciplines and Skills II	ENGR 1050		
ENGR 1070	Programming and Problem Solving I	ENGR 1020 *or* preq or concurrent enrollment in ENGR 1060		
ENGR 1080	Programming and Problem Solving II	ENGR 1070 and ENGR 1020 *or* ENGR 1060		
ENGR 1090	Programming and Problem Solving Applications	ENGR 1080		
ENGR 1410	Programming and Problem Solving	ENGR 1020 *or* ENGR 1060 *or* ENGR 1520	ENGR 1411	
ENGR 1411	Programming and Problem Solving Laboratory		ENGR 1410	
ENGR 1510	Engineering Skills	Membership in GELC	ENGR 1511	
ENGR 1511	Engineering Skills Laboratory		ENGR 1510	
ENGR 1520	Engineering Computer Skills	ENGR 1510 and membership in GELC	ENGR 1521	
ENGR 1521	Engineering Computer Skills Laboratory		ENGR 1520	
ENGR 1640	Engineering MATLAB Programming	ENGR 1520 *or* ENGR 1530 and membership in GELC	ENGR 1641	
ENGR 1641	Engineering MATLAB Programming Laboratory		ENGR 1640	
ENGR 2080	Engineering Graphics and Machine Design		ENGR 2081	
ENGR 2081	Engineering Graphics and Machine Design Laboratory		ENGR 2080	
ENGR 2100	Computer-Aided Design and Engineering Applications		ENGR 2101	
ENGR 2101	Computer-Aided Design and Engineering Applications Laboratory		ENGR 2100	
PHYS 1220	Physics with Calculus I			MATH 1060 *or* MATH 1070 *or* MATH 1080 *or* MATH 2060 *or* MATH 2080
PHYS 1240	Physics Laboratory I			PHYS 1220
PHYS 2210	Physics with Calculus II	PHYS 1220		MATH 1080 *or* MATH 1110

updated 1/3/25; effective AY 25-26