

EE Technical Requirements

Courses that satisfy EE technical electives are shown below. Three courses (9 credits) must be taken.

Subject	Course	Course Title	Semester Offered ¹	Pre-requisites ²
Computer Systems & Architecture	ECE 2220	Systems Prog. Concepts for Computer Engineering	Fall & Spring	CPSC 1110 ²
	ECE 4420	Knowledge Engineering	Fall	ECE 3170 ² or MATH 4000 ² or STAT 3090 ²
	ECE 4290	Organization of Computers	Fall	ECE 2720 ²
	ECE 4680/4681	Embedded Computing	Spring	ECE 2230 ² and ECE 3710 ² ; Co-req ECE 4681
	ECE 4730	Introduction to Parallel Systems	Fall or Spring	ECE 3220 ² or ECE 3290 ²
Biomedical Systems	BIOE 3700/3701	Bioinstrumentation and Bioimaging	Fall & Spring	MATH 2080 and ECE 2020 or ECE 2070; Co-req BIOE 3701
	BIOE 4310/4311	Medical Imaging	Spring	MATH 2080 and ECE 2020 or ECE 2070; Pre or co-req BIOE 3700; Co-req BIOE 4311
	BIOE 4350	Computational Modeling in Bioengineering	Spring	MATH 2080
	BIOE 4710	Biophotonics	Check w/ Dept.	MATH 2080, PHYS 2210, and ECE 2070 or ECE 3200
Communication Systems & Networks	ECE 4300	Digital Communications	Fall or Spring	ECE 3170 ² and ECE 3300 ² , and consent of instructor
	ECE 4380	Computer Communications	Spring	Senior Standing in EE or CpE
	ECE 4400	Performance Analysis of Local Computer Networks	Spring	ECE 2720 ² and ECE 3170 ²
Digital Signal Processing	ECE 4420	Knowledge Engineering	Fall	ECE 3170 ² or MATH 4000 ² or STAT 3090 ²
	ECE 4670	Introduction to Digital Signal Processing	Fall	ECE 3300 ²
Applied Electromagnetics	ECE 4360	Microwave Circuits	Fall	ECE 3810 ² , pre or co-req MATH 3110 ² or MATH 4340 ²
	ECE 4460	Antennas and Propagation	Spring	ECE 3300 ² , ECE 3810 ² , and MATH 3110 ² or MATH 4340 ²
	ECE 4320	Instrumentation	Spring	ECE 3210 ² , pre or co-req MATH 3110 ² or MATH 4340 ²
	ECE 4350	Electromagnetic Compatibility	Spring	ECE 3810 ²
Electronics	ECE 4040	Semiconductor Devices	Fall	ECE 3200 ² , pre or co-req MATH 3110 ² or MATH 4340 ²
	ECE 4060	Intro to Microelectronics Processing	Fall	ECE 3200 ² , pre or co-req MATH 3110 ² or MATH 4340 ²
	ECE 4220/4221	Electronic System Design I	Spring	ECE 3210 ² , ECE 3300 ² , ECE 3600 ² , ECE 3710 ² and ECE 3810 ² Co-req ECE 4221
	ECE 4320	Instrumentation	Spring	ECE 3210 ² , pre or co-req MATH 3110 ² or MATH 4340 ²
	ECE 4370	Microelectromechanical Systems	Spring	CH 1020 and PHYS 1220 and Senior Standing in EE or CpE
	ECE 4590	Integrated Circuit Design	Fall	ECE 3200 ² or ECE 3210 ² , pre or co-req MATH 3110 ² or MATH 4340 ² Co-req ECE 4591
	ME 3100	Thermodynamics and Heat Transfer	Spring	MATH 2060 and PHYS 2210
Intelligent Systems	ECE 4160	Smart Grid	Spring	Sr standing in EE or CPE
	ECE 4420	Knowledge Engineering	Fall	ECE 3170 ² or MATH 4000 ² or STAT 3090 ²
	ECE 4550	Robot Manipulators	Summer	MATH 2060 ² and MATH 3110 ²
	ECE 4570	Fundamentals of Wind Power	Summer	ECE 2070 ² or ECE 3200 ²
	ECE 4600	Computer-Aided Analysis & Design	Spring	ECE 2620 ² , MATH 3110 ² and MATH 4340 ²
	ECE 4670	Introduction to Digital Signal Processing	Fall	ECE 3300 ²
	ECE 4680/4681	Embedded Computing	Spring	ECE 2230 ² and ECE 3710 ² ; Co-req ECE 4681
Power	ECE 4160	Smart Grid	Spring	Sr Standing in EE or CPE
	ECE 4180	Power Systems Analysis	Fall	ECE 3600 ² and ECE 3800 ²
	ECE 4190	Electric Machines and Drives	Spring	ECE 3210 ² , ECE 3600 ² , and ECE 3800 ² , pre or co-req MATH 4340 ²
Renewable Energy & Electric Vehicles	ECE 4190	Electric Machines and Drives	Spring	ECE 3210 ² , ECE 3600 ² , and ECE 3800 ² , pre or co-req MATH 4340 ²
	ECE 4200	Renewable Energy Penetration on the Power Grid	Spring	ECE 2070 ² or ECE 3200 ²
	ECE 4570	Fundamentals of Wind Power	Summer	ECE 2070 ² or ECE 3200 ²
	ECE 4610	Fundamentals of Solar Energy	Fall	ECE 3200 ²
Other Course Options ³	ECE 4050 ³	Design Projects	Fall & Spring	ECE 3300 ² or ECE 4090 ² , and consent of project supervisor
	ECE 4910 ³ H	Honors Research	Fall & Spring	Consent of instructor
	ECE 4920 ³	Special Problems	Fall & Spring	Consent of instructor
	ECE 4930 ³	Selected Topics	Fall & Spring	Consent of instructor
	ECE 4990 ³	Creative Inquiry	Fall & Spring	Consent of faculty member/mentor
	ECE 4990 ³ H	Honors Creative Inquiry	Fall & Spring	Consent of faculty member/mentor

¹ Semesters offered may be subject to change.

² A student is allowed to enroll in ECE courses (excluding ECE 2070, 2080, 3080) only when all prerequisites have been passed with a grade of C or better.

³ A maximum of 3 credits from courses listed in "Other Course Options" may be used to satisfy a Technical Elective Requirement.

