

EE Electives by Focus Area (also known as "EE Technical Electives")

Courses which may be used to fulfill "EE Electives" on the BSEE. See degree audit for minimum number of credits required.

This list shows which focus area(s) courses best fall into. Mix and match as the student chooses. EE (Technical) Electives are EE courses that are not specifically required, are lecture-based or lab-based. Check the Schedule of Classes for actual offerings each semester and plan ahead at least 3 semesters for preferred courses. Meet with the academic advisor for assistance. Contact instructor for course content.

Exclusions: EE3010, EE3805, EE4000, EE4805, EE3901, EE4901, EE4910. Graduate level courses may be used and typically require a level-waiver/instructor permission.

Focus Area	Course	Title	Cr.	Requirements	Offered
Varies	EE 4800	Special Topics in ECE (EE &/or CpE)	1-6	Instructor permission	Occasionally
	EE 4800	0A - Electronic Materials and Devices	3	EE3131	Spring 2021
Power and Energy	EE4219	Introduction to Machinery and Drives	3	(EE3120 and (EE2112 or EE3010)	Spg
	EE4220	Introduction to Machinery and Drives Lab	1	EE4219(co-req)	Spg
	EE4221	Power Analysis 1	3	EE3120 and EE2112	Fall
	EE4222	Power Analysis 2	3	EE4221	Spg
	EE4226	Power Engineering Lab	1	EE4221 and EE4222(co-req)	Spg, May
	EE5223	Power System Protection	3	Level waiver; Instructor permission	Alternate Spg-Odd
	EE5224	Power System Protection Lab	1	EE5223(co-req)	Alternate Spg-Odd
	EE5250	Distribution Engineering	3	EE4221; Level waiver/Instr. permit	Alternate Spg-Even
	EE4227	Power Electronics	3	EE3120 and EE3131(c)	Fall
	EE4228	Power Electronics Lab	1	EE4227(co-req)	Fall
	EE4295/MI Intro. to Propulsion Syst. for HEV	3	MEEM2201 or ENG3200	Fall	
	EE4296/MI Experimental Studies in HEV	3	COE enrolled; not FR,SO or JR	Fall, Sum	
Photonics	EE2190	Introduction to Photonics	3	MA3520/21 and PH2200(co-req)	Spg
	EE3190	Optical Sensing and Imaging	3	MA3520/21 or MA3530 or MA3560	Fall
	EE3290	Photonics Material, Devices, & Appls.	4	EE2190 or EE3140 or PH2400	Spg
	EE4490	Laser Systems and Applications	4	EE3140	Fall
Robotics, Control, and Automation	EE2180	Introduction to Robotics	3	MA1121, MA1160 or MA1161; Not SR	Spg
	EE3280	Robot Operating Systems	3	EE2180 or SAT2711; begins spring 2022	Spring 2022
	EE4235	Sensing & Processing in Robotics	3	begins fall 2022	Fall 2022
	EE4375	Autonomous Vehicle Design (w/lab)	3	EE3261 & EE3280; begins in a future semester	Spg - 2023?
	EE4219	Introduction to Machinery and Drives	3	(EE3120 and (EE2112 or EE3010)	Spg
	EE4220	Introduction to Machinery and Drives Lab	1	EE4219(co-req)	Spg
	EE4262	Digital and Non-linear Control	3	EE3261	Spg
	EE4777	Distributed Additive Manufac. Using Open-	3	COE enrolled; JR or SR	Fall
	EE5750	Model-Based Embedded Control Syst. Design	3	EE3261 and EE4295; Level waiver	Fall
	EE3373	Introduction to PLC's	3	EE2112	Fall, Sum
EE4373	Advanced PLC's	4	EE3373	Spg	
Digital Signal Processing	EE4252	DSP and It's Applications	3	EE3160 and EE4259 (co-req)	Fall
	EE4259	DSP and It's Applications Lab	1	EE4252 (co-req)	Fall
	EE4253	Real-Time Signal Processing	3	EE4252 (co-req)	Not spg 2021
	EE5527	Digital Communications	3	EE4250	Not spg 2021
Electronics	EE2230	Printed Circuit Seminar Series	3	CH1150 & CH1151 & EE2231(co-req)	Spg
	EE2231	Printed Circuit Fabrication	1	Instructor permission	Spg
	EE4231	Physical Electronics	3	EE3131	Fall
	EE4232	Electronic Applications	3	EE3131	Not spg 2021
	EE4271	VLSI Design	4	EE2174 and EE3131	Fall
	EE4240	Introduction to MEMS	4	Not FR, SO, or JR	Fall
	EE 4800	0A - Electronic Materials and Devices	3	EE3131; One-time offering	Spring 2021
Electromagnetics	EE4490	Laser Systems and Applications	4	EE3140	Fall or Spg
	EE4411	Engineering Electromagnetics	3	EE3140	On Demand
Computer Systems	EE4271	VLSI Design	4	EE2174 and EE3131	Fall
	EE4272	Computer Networks (listed w/ CS4461)	3	CS3411	Fall, Spg
	EE4273	Computer Security	3	EE4272 or CS4461 or SAT4812	Spg
	EE4737	Embedded System Interfacing	4	(CS1111 or CS1142) and (EE3171 or EE3173)	Not spg 2021

Check online descriptions for most current pre-requisites. See Schedule of Classes(SOC) for semester's offerings.