**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.

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Course</th>
<th>Title</th>
<th>Cr.</th>
<th>Requirements</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varies</td>
<td>EE 4800</td>
<td>Special Topics in ECE (EE &amp;/or CpE)</td>
<td>1-6</td>
<td>Instructor permission</td>
<td>Occasionally</td>
</tr>
</tbody>
</table>

**Power and Energy**

- EE 4219 Introduction to Machinery and Drives 3 (EE3120 and (EE2112 or EE3010)) Spg
- EE 4220 Introduction to Machinery and Drives Lab 1 EE4219(co-req) Spg
- EE 4221 Power Analysis 1 3 EE3120 and EE2112 Fall
- EE 4222 Power Analysis 2 3 EE4221 Spg
- EE 4226 Power Engineering Lab 1 EE4221 and EE4222(co-req) Spg, May
- EE 5223 Power System Protection 3 Level waiver; Instructor permission Alternate Spg-Odd
- EE 5224 Power System Protection Lab 1 EE5223(co-req) Alternate Spg-Odd
- EE 5250 Distribution Engineering 3 EE4221; Level waiver/Instr. permit Alternate Spg-Even
- EE 4222 Power Electronics 3 EE120 and EE3131(c) Fall
- EE 4228 Power Electronics Lab 1 EE4227(co-req) Fall
- EE 4295/M Intro. to Propulsion Syst. for HEV 3 MEEM2201 or ENG3200 Fall
- EE 4296/M Experimental Studies in HEV 3 COE enrolled; not FR, SO or JR Fall, Sum

**Photronics**

- EE 2190 Introduction to Photonics 3 MA3520/21 and PH2200(co-req) Spg
- EE 3190 Optical Sensing and Imaging 3 MA3520/21 or MA3530 or MA3560 Fall
- EE 3290 Photonics Material, Devices, & Appls. 4 EE2190 or EE3140 or PH2400 Spg
- EE 4490 Laser Systems and Applications 4 EE3140 Fall

**Robotics, Control, and Automation**

- EE 2180 Introduction to Robotics 3 (EE3010(C) or EE2111(C)) and MA2321/0(C) Spg
- EE 3261 Control Systems 3 EE3160 (EE3261 is a required course or elective) Fall, Spg
- EE 3280 Robot Operating Systems 3 EE2180 and SAT2711 Spring
- EE 4235 Sensing & Processing in Robotics 3 EE2180 and ENG1101 Fall
- EE 4375 Autonomous Vehicle Design (w/lab) 3 EE3261 & EE3280; begins in a future semester Spring
- EE 4219 Introduction to Machinery and Drives 3 (EE3120 and (EE2112 or EE3010)) Spg
- EE 4220 Introduction to Machinery and Drives Lab 1 EE4219(co-req) Spg
- EE 4261 Digital and Non-linear Control 3 EE3261 Spg
- EE 5750 Model-Based Embedded Control Syst. Design 3 EE3261 and EE4295; Level waiver Fall
- EE 3373 Introduction to PLC's 3 EE2112; Priority reg for Robotics Engg. Fall, Sum
- EET 4373 Advanced PLC's 4 EE3373 Spg

**Communication & Digital Signal Processing**

- EE 2230 Printed Circuit Seminar Series 3 CH1150 & CH1151 & EE2231(co-req) Chk Spg Sched.
- EE 2231 Printed Circuit Fabrication 1 Instructor permission Chk Spg Sched.
- EE 4231 Physical Electronics 3 EE3131 Fall
- EE 4232 Electronic Applications 3 EE3131 Chk Spg&Fall Sch.
- EE 4271 VLSI Design 4 EE2174 and EE3131 Fall
- EE 4240 Introduction to MEMS 4 Not FR, SO, or JR Fall
- EE 5471 Microfabrication Lab 2 Seniors; Grad level Spg or Fall

**Electronics**

- EE 4490 Laser Systems and Applications 4 EE3140 Fall or Spg
- EE 4411 Engineering Electromagnetics 3 EE3140 On Demand/Fall

**Electromagnetics**

- EE 4471 VLSI Design 4 EE2174 and EE3131 Fall
- EE 4721 VLSI Design 3 CS3411 Fall, Spg
- EE 4370 IoT Application and Design 3 EE4272 or TCP/IP & mach. learning basics Fall
- EE 4723 Computer Security 3 EE4272 or CS4461 or SAT4812 Spg
- EE 4737 Embedded System Interfacing 4 (CS1111 or CS1142) and (EE3171 or EE3173) Spg
- EE 5435 High-Speed Circuit Design 3 permission of instructor for level waiver Alt. Spg odd

Check online Schedule of Classes(SOC) for semester's offerings and most current Course Descriptions w/ Preq info.