EE Elective courses listed by focus area

**B.S. Electrical Engineering degree**

~ plan ahead ~

‘EE Elective’ courses are offered in the various areas of specialty within ECE. These are not concentrations and are not listed on your diploma. Check the Course Descriptions and Schedule of Classes for current course information. It is a good idea to have a strong focus in at least one area for your career or grad school. You can mix and match classes as you like. Plan your electives at least 3 semesters in advance – when you are in JR EE courses and are learning what the different areas involve. Graduate level, lecture-based courses qualify as EE Elective credit. A concentration in Photonics is listed on the diploma.

Special Topics vary: EE 4800 Check schedule and catalog descriptions for additional EE course offerings each semester using EE4800.

**Power & Energy:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 4219</td>
<td>Introduction to Electric Machinery and Drives</td>
<td>Spring</td>
</tr>
<tr>
<td>EE 4220</td>
<td>Introduction to Electric Machinery and Drives Lab</td>
<td>Spring</td>
</tr>
<tr>
<td>EE 4221</td>
<td>Power System Analysis 1</td>
<td>Fall</td>
</tr>
<tr>
<td>EE 4222</td>
<td>Power System Analysis 2</td>
<td>Spring</td>
</tr>
<tr>
<td>EE 5223</td>
<td>Power System Protection</td>
<td>Spring or Odd Springs - check schedule of classes</td>
</tr>
<tr>
<td>EE 5224</td>
<td>Power System Protection Lab</td>
<td>Spring or Odd Springs - check schedule of classes</td>
</tr>
<tr>
<td>EE 5250</td>
<td>Distribution Engineering</td>
<td>Spring or Even Springs - check schedule of classes</td>
</tr>
<tr>
<td>EE 4226</td>
<td>Power Engineering Lab</td>
<td>Spring, Summer D(1st week of May)</td>
</tr>
<tr>
<td>EE 4227</td>
<td>Power Electronics</td>
<td>Fall</td>
</tr>
<tr>
<td>EE 4228</td>
<td>Power Electronics Lab</td>
<td>Fall</td>
</tr>
<tr>
<td>EE 4295</td>
<td>Intro Propulsion Systems for Hybrid Elec Vehicles</td>
<td>Fall</td>
</tr>
<tr>
<td>EE 4296</td>
<td>Intro Propulsion Systems for Hybrid Elec Vehicles Lab</td>
<td>Fall</td>
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</tbody>
</table>

**Photonics:** ~ Also See EE Photonics Concentration Requirements (Degree Services – audit)

EE 3090 Geometrical & Wave Optics Fall
EE 3190 Optical Sensing and Imaging Spring
EE 3290 Photonic Material, Devices & Apps Fall 4 cr.
EE 4490 Laser Systems and Applications Spring 4 cr.
EE 4256 Fourier Optics Fall
EE 4290 Optical Communication Spring

**Control**

EE 4219 Introduction to Electric Machinery & Drives Spring
EE 4220 Introduction to Electric Machinery and Drives Lab Spring
EE 4262 Digital & Non-Linear Control Spring
EE 4777 Open-Source 3-D Printing Fall
EE 5750 Distributed Embedded Control Systems Spring
EE 3373 Intro to Programmable Controllers (PLCs) Fall
EE 4373 Advanced Programmable Controllers Spring 4 cr.

**DSP:**

EE 4252 Digital Signal Processing and It’s Applications Fall 4 cr
EE 4253 Real-time Signal Processing Spring
EE 5522 Digital Image Processing Alternating Springs

**Electronics:**

EE 4231 Physical Electronics Spring (previously offered in falls)
EE 4271 VLSI Design Summer Fall
EE 4240 Introduction to MEMS Alternating Falls 4 cr

**Communication:**

EE 5527 Digital Communications Spring
EE 5525 Wireless Communications Fall
EE 4272 Computer Networks Fall (Co-listing with CS4461)
EE 4365 In-Vehicle Communication Networks Spring, Summer

**Electromagnetics:**

EE 4411 Engineering Electromagnetics Fall
EE 4490 Laser Systems and Applications Spring 4 cr.

**Computer Systems:**

EE 4271 VLSI Design Fall
EE 4272/ CS4461 Computer Networks Fall/Spring (Co-listing with CS4461) CpE's
EE 4495 S/H Design of Multimedia Systems Spring (not offered spring 2016) CpE's
EE 5496 GPU and Multicore Programming Fall CpE's
EE 4735 Embedded System Programming using Sensor Networks & Mobile Robots Spring

Photonics Concentration required courses:

EE3090, EE3190, EE3290, EE4490

Photonics Concentration electives (2009 and later)

Choose 6 credits from the following:
BE4250(s), EE4252(f), EE4253(s), EE4256(f), EE5522, EE4290(s), MY4292(s), PH4510(f)

Choose 3 credits of EE Electives.

EE3171 and EE3120 are not required with the Photonics Concentration.

Use Curriculum Add/Drop form to add a concentration in Photonics with BSEE.

Check online descriptions for most current pre-requisites and semester offerings. Plan ahead. See schedules for new offerings.

EE Electives are EE courses that are not specifically required, are lecture-based, and not EE3010, EE3805, EE4000, EE4805, EE3901, EE4901, EE4910. Graduate level EE lecture courses may be used - Instructor/level waiver approval needed to register.

*EE3250 and EE3261 may be used as EE electives for catalog years 2011-12 and earlier.