EE Elective courses listed by focus area  

**Guide for planning**  

**Minimum: 15 credits**  

~ 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 will be listed on the diploma.

**Special Topics vary:**  

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**Power & Energy:**

- **EE 4219** Introduction to Electric Machinery and Drives  
  Spring
- **EE 4220** Introduction to Electric Machinery and Drives Lab  
  Spring
- **EE 4221** Power System Analysis 1  
  Fall
- **EE 4222** Power System Analysis 2  
  Spring
- **EE 5223** Power System Protection  
  Spring or Odd Springs - check schedule of classes
- **EE 5224** Power System Protection Lab  
  Spring or Odd Springs - "
- **EE 5250** Distribution Engineering  
  Spring or Even Springs - check schedule of classes
- **EE 4226** Power Engineering Lab  
  Spring, Summer D(1st week of May)
- **EE 4227** Power Electronics  
  Fall
- **EE 4228** Power Electronics Lab  
  Fall
- **EE 4295** Intro Propulsion Systems for Hybrid Elec Vehicles  
  Fall
- **EE 4296** Experiential Studies in HEV  
  Fall

**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 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 5527** Digital Communications  
  Spring

**Electronics:**

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

**Communication:**

- **EE 5527** Digital Communications  
  Spring
- **EE 4272** Computer Networks  
  Fall (Co-listing with CS4461)  
  QpE's
- **EE 4723** Network Security  
  Spring  
  QpE's

**Electromagnetics:**

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

**Computer Systems:**

- **EE 4272/ CS4461** Computer Networks  
  Fall/Spring (Co-listing with CS4461)  
  QpE's
- **EE 5496** GPU and Multicore Programming  
  Fall  
  QpE's
- **EE 4735** Embedded System Programming using Sensor Networks & Mobile Robots  
  Spring
- **EE 4723** Network Security  
  Spring  
  QpE's
- **EE 4271** VLSI Design  
  Fall (if offered)

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

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