Guide for planning

EE Technical Elective courses listed by focus area

Minimum: **15 credits**

~ plan ahead ~

‘EE Technical Elective’ courses are offered in the various areas of specialty (focus areas) within ECE. These are not concentrations and are not listed on your diploma. Check the Course Descriptions and Schedule of Classes (SOC) 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 Technical Elective credit. A concentration will be listed on the diploma.

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

Power & Energy:

**EE 4219** Introduction to Electric Machinery and Drives  
**EE 4220** Introduction to Electric Machinery and Drives Lab  
**EE 4221** Power System Analysis 1  
**EE 4222** Power System Analysis 2  
**EE 5223** Power System Protection  
**EE 5224** Power System Protection Lab  
**EE 5250** Distribution Engineering  
**EE 4226** Power Engineering Lab  
**EE 4227** Power Electronics  
**EE 4228** Power Electronics Lab  
**EE 4295** Intro Propulsion Systems for Hybrid Elec Vehicles  
**EE 4296** Experiential Studies in HEV

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

**EE 2190** Introduction to Photonics  
**EE 3090** Geometrical & Wave Optics  
**EE 3190** Optical Sensing and Imaging  
**EE 3290** Photonic Material, Devices & Apps  
**EE 4490** Optical Communication

Control:

**EE 4219** Introduction to Electric Machinery & Drives  
**EE 4220** Introduction to Electric Machinery and Drives Lab  
**EE 4262** Digital & Non-Linear Control  
**EE 4777** Open-Source 3-D Printing  
**EE 5750** Distributed Embedded Control Systems  
**EE 4373** Intro to Programmable Controllers (PLC’s)  
**EE 4373** Advanced Programmable Controllers

DSP:

**EE 4252** Digital Signal Processing and It’s Applications  
**EE 4253** Real-time Signal Processing  
**EE 5527** Digital Communications

Electronics:

**EE 4231** Physical Electronics  
**EE 4232** Electronic Applications  
**EE 4271** VLSI Design  
**EE 4240** Introduction to MEMS

Communication:

**EE 5527** Digital Communications  
**EE 4272** Computer Networks  
**EE 4723** Network Security

Electromagnetics:

**EE 4411** Engineering Electromagnetics  
**EE 4490** Laser Systems and Applications  

Computer Systems:

**EE 4272/CS4461** Computer Networks  
**EE 5496** GPU and Multicore Programming  
**EE 4737** Embedded System Interfacing  
**EE 4721** VLSI Design

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

EE Technical Electives are EE courses that are not specifically required, are lecture-based, and not EE3010, EE3805, EE4000, EE4805, EE3901, EE4901, EE4910. EEnXXE – may not be used unless course is approved by the department (syllabus required). Graduate level EE lecture courses may be used - Instructor/level waiver approval needed to register.

Photonics Concentration required courses
EE2190, EE3190, EE3290, EE4490

Photonics Concentration electives
(2009 and later)
Choose 6 credits from the following:
- BE4250(s-odd), BE4410(s-odd), EE4240(f), EE4252&59(f), EE4253(s), EE4290(s), MSE4292(s), PH3410(s), PH4510(f), PH4640(f-odd)

Also, choose 3 cr. of EE Technical Electives.

EE3171 and EE3120 are not required with the Photonics Concentration. Waiver needed for EE4901 and ENT4950.

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