Guide for planning Minimum: **15 credits** (varies with concentrations) 7-Nov-19

**EE Technical Elective courses** listed by focus area  **B.S. Electrical Engineering degree**

~Plan Ahead ~ at least 3 semesters

‘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. 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  **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**
EE 5224 Power System Protection Lab  **Spring or Odd Springs – "**
EE 5250 Distribution Engineering  **Spring or Even Springs – check schedule**
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 Experimental Studies in HEV  **Fall**

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

EE 2190 Introduction to Photonics  **Spring (begins Spring 2019)**
EE 3090 Geometrical & Wave Optics  **Fall (ends Fall 2017)**
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 (not always available)**

**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  **Fall & Spring 2020**
EE 2180 Introduction to Robotics  **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 (not offered recently)**
EE 5527 Digital Communications  **Spring**

**Electronics:**
EE 4231 Physical Electronics  **Fall Spring (not offered Spring 2019)**
EE 4232 Electronic Applications  **Spring**
EE 4271 VLSI Design  **Fall (if offered) 4 cr**
EE 4240 Introduction to MEMS  **Alternating Falls 4 cr**
EE 2230 Printed Circuit Seminar Series
EE 2231 PCB Fabrication (1 cr. lab) co-req/EE2230

**Communication:**
EE 5527 Digital Communications  **Spring**
EE 4272 Computer Networks  **Fall (Co-listing with CS4461) CpE’s**
EE 4723 Network Security  **Spring CpE’s**

**Electromagnetics:**
EE 4411 Engineering Electromagnetics  **Fall (on demand)**
EE 4490 Laser Systems and Applications  **Fall or Spring-check SOC 4 cr. (offered fall 2019, planned fall 2020)**

**Computer Systems:**
EE 4272/CS4461 Computer Networks  **Fall/Spring (Co-listing with CS4461) CpE’s**
EE 5496 GPU and Multicore Programming  **Fall CpE’s**
EE 4737 Embedded System Interfacing  **Spring 4 cr. (begins Spring 2019) [EE4735 ended spring 2016]**
EE 4723 Network Security  **Spring CpE’s**
EE 4271 VLSI Design  **Fall**

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. EE44XX – may not be used unless course is approved by the department (syllabus required). 0-6 credits limit of lower-level (less than 3000). Graduate level EE lecture courses may be used - Instructor/level waiver approval needed to register.