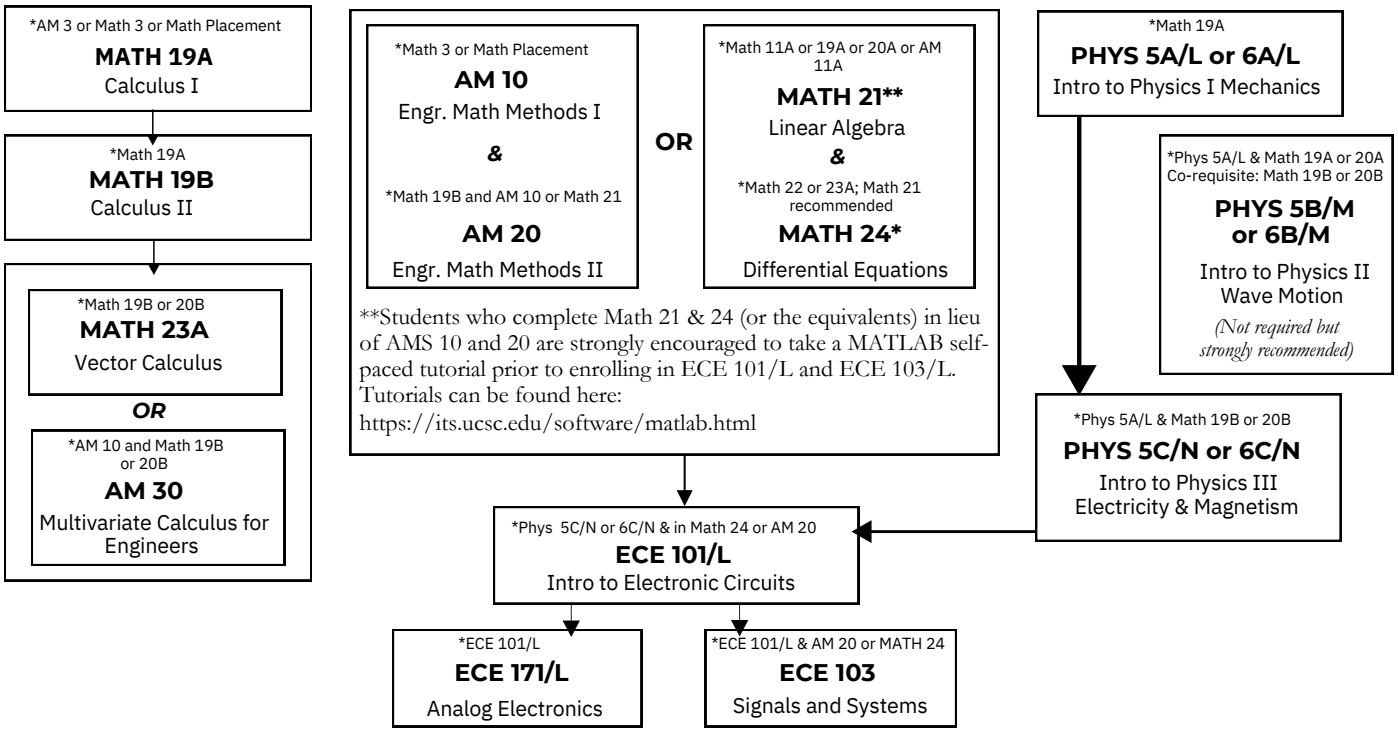
Electrical Engineering Minor
2023-2024 Curriculum Chart



Elective Requirements:
In addition to the above, EE minors must complete at least 15 units of upper-division or graduate-level engineering courses from one track, plus at least 15 additional credits of upper-division or graduate courses from the lists below. All of the upper-division electives must come from the same concentration. **Most, if not all elective courses have additional pre-requisites. They are subject to change frequently. Please visit https://catalog.ucsc.edu/Current/General-Catalog/Courses/ECE-Electrical-and-Computer-Engineering.**

Digital Hardware Concentration!

ECE 130/L Introduction to Optoelectronics and Photonics
ECE 136 Engineering Electromagnetics
ECE 141 Feedback Control Systems
ECE 145 Estimation and Introduction to Control of Stochastic Processes
ECE 149 Introduction to Cyber-physical Systems
ECE 151 Communications Systems
ECE 152 Introduction to Wireless Communications
ECE 153 Digital Signal Processing
ECE 167 Sensing and Sensor technologies
ECE 172 Advanced Analog Circuits
ECE 176/L Energy Conservation and Control
ECE 151 Communications Systems

Control and Signal Processing Concentration>

ECE 130/L Introduction to Optoelectronics and Photonics
ECE 135/L Electromagnetic Fields and Waves
ECE 136 Engineering Electromagnetics
ECE 145 Estimation and Introduction to Control of Stochastic Processes
ECE 149 Introduction to Cyber-physical Systems
ECE 172 Advanced Analog Circuits
ECE 176/L Energy Conservation and Control
ECE 177/L Power Electronics
ECE 237 Image Processing and Reconstruction
ECE 243 System Identification
ECE 244 Digital Control
ECE 245 Estimation and Introduction to Control of Stochastic Processes
ECE 251 Principles of Digital Communications
ECE 253/CSE 208 Introduction to Information Theory
ECE 255 Error Control Coding
ECE 256 Statistical Signal Processing
CSE 150 Introduction to Computer Networks
CSE 152 Principals of Computer Communication

Electronics and Photonics Concentration<

ECE 104 Bioelectronics
ECE 115 Introduction to Solid Mechanics
ECE 121 Microcontroller System Design
ECE 130/L Introduction to Optoelectronics and Photonics
ECE 136 Engineering Electromagnetics
ECE 141 Feedback Control Systems
ECE 145 Estimation and Introduction to Control of Stochastic Processes
ECE 149 Introduction to Cyber-physical Systems
ECE 152 Introduction to Wireless Communications
ECE 153 Digital Signal Processing
ECE 157/L RF Hardware Design
ECE 167 Sensing and Sensor Technologies
ECE 172 Advanced Analog Circuits
ECE 173 High-Speed Digital Design
ECE 174 Introduction to EDA Tools for PCB Design
ECE 175/L Energy Generation and Control
ECE 176/L Energy Conservation and Control
ECE 177/L Power Electronics
ECE 178 Device Electronics
ECE 180J Advanced Renewable Energy Sources, Storage, and Smart Grids
ECE 201 Introduction to Nanotechnology
ECE 203 Nanocharacterization of Materials
ECE 231 Optical Electronics

Robotics and Automation Concentration

ECE 115 Introduction to Solid Mechanics
ECE 145 Estimation and Introduction to Control of Stochastic Processes
ECE 149 Introduction to Cyber-physical Systems
ECE 151 Communications Systems
ECE 152 Introduction to Wireless Communications
ECE 153 Digital Signal Processing
ECE 176/L Energy Conservation and Control

Communications Signal Processing Concentration^

ECE 118 Intro to Mechatronics
ECE 130/L / 230 Intro Optical Fiber Communication
ECE 136 Engineering Electromagnetics
ECE 141 / 241 Feedback Control Systems
ECE 145 Estimation and Introduction to Control of Stochastic Processes
ECE 149 Introduction to Cyber-physical Systems
ECE 152 / 252 Introduction to Wireless Communications
ECE 157/L RF Hardware Design
ECE 237 Image Processing and Reconstruction
ECE 251 Principles of Digital Communications
ECE 253/ CSE 208 Introduction to Information Theory
ECE 255 Error Control Coding
ECE 256 Statistical Signal Processing
CSE 150 Intro Computer Networks

Power and Energy Concentration~

ECE 104 Bioelectronics
ECE 121 Microcontroller System Design
ECE 130/L Introduction to Optoelectronics and Photonics
ECE 136 Engineering Electromagnetics
ECE 141 Feedback Control Systems
ECE 149 Introduction to Cyber-physical Systems
ECE 152 Introduction to Wireless Communications
ECE 153 Digital Signal Processing
ECE 157/L RF Hardware Design
ECE 167 Sensing and Sensor Technologies
ECE 170 Advanced Power Electronics
ECE 172 Advanced Analog Circuits
ECE 173 High-Speed Digital Design
ECE 174 Introduction to EDA Tools for PCB Design
ECE 175/L Energy Generation and Control
ECE 176/L Energy Conservation and Control
ECE 177/L Power Electronics
ECE 178 Device Electronics
ECE 180J Advanced Renewable Energy Sources, Storage, and Smart Grids
ECE 181J Renewable Energy Sources in Practice
ECE 185 Introduction to the US Electricity Industry
ECE 275 Energy Market, Policy, and Modeling

Electrical Engineering Minor
2023-2024 Curriculum Chart

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Key:
*These courses are prerequisites.
^(ECE 130 and ECE 230, ECE 141 and ECE 241, and ECE 153 and ECE 250 are undergraduate and graduate courses taught in conjunction, and only one can be taken for this program.)
>(ECE 130 and ECE 230, and ECE 172 and ECE 221 are undergraduate and graduate courses taught in conjunction, and only one can be taken for this program.)
<(ECE 130 and ECE 230, ECE 141 and ECE 241, and ECE 172 and ECE 221 are undergraduate and graduate courses taught in conjunction, and only one can be taken for this program.)
~(ECE 130 and ECE 230, ECE 141 and ECE 241, and ECE 172 and ECE 221 are undergraduate and graduate courses taught in conjunction, and only one can be taken for this program.)
!(ECE 130 and ECE 230, ECE 141 and ECE 241, and ECE 172 and ECE 221 are undergraduate and graduate courses taught in conjunction, and only one can be taken for this program.)

Student Name:

Staff Advisor:

Faculty Advisor: