

# Electrical Engineering B.S. Degree 2024-2025 Curriculum

## Math Courses

### MATH 19A

Calculus I

Prerequisites: Math  
Placement score of  
400 or more or Math  
3

### MATH 19B

Calculus II

Prerequisites: Math 19A

### STAT 131

Introduction to  
Probability Theory  
Prerequisites: Math 19B

OR

### CSE 107

Probability and  
Statistics for Engineers  
Prerequisites: CSE 16; and AM 30 or  
Math 23A

NOTE: CSE 16 is not a major  
requirement for EE

### AM 30

Multivariate Calculus for  
Engineers

Prerequisites: AM 10 or Math 21;  
Math 19B

AND

### AM 100

Mathematical Methods for  
Engineers

Prerequisites: AM 20 or Math 24,  
and AM 30 or MATH 23B

OR

### MATH 23A

Vector Calculus I

Prerequisites: Math  
19B or 20B

AND

### MATH 23B

Vector Calculus II

Prerequisites:  
Math 23A

### AM 10\*

Math Methods I

Prerequisites: Math  
Placement score of 400 or  
higher or Math 3

OR

### MATH 21

Linear Algebra

Prerequisites: Math  
19A

AND

### AM 20\*

Math Methods II

Prerequisites: Math  
19B and AM 10

OR

### MATH 24

Ordinary  
Differential  
Equations

Prerequisites: Math 23A

\*Note: AM 10 and AM 20 are preferred.

## Physics Courses

### PHYS 5A/L

Mechanics

Prerequisites:  
Math 19A or 20A, and  
concurrent enrollment  
in Math 19B

### PHYS 5B/M

Waves & Optics

Prerequisites:  
Phys 5A/L and Math 19B

### PHYS 5C/N

Electricity &  
Magnetism

Prerequisites:  
Phys 5A/L, Math 19A,  
Corequisite Math 19B

### PHYS 5D

Heat &  
Thermodynamics

Prerequisites:  
Phys 5A/L, Phys 5B, Math 19B

## Computer Engineering Courses

### CSE 12

Computer Systems &  
Assembly Language and  
Lab

Prerequisites: CSE 20

### ECE 13

Computer Systems & C  
Programming

Prerequisites: CSE 12 and  
CSE 20  
CSE 30 is recommended

## Electrical Engineering Courses

### ECE 80T<sup>^</sup>

Modern Technology

<sup>^</sup>This course is waived  
for transfer students.

### ECE 102/L

Properties of  
Materials

Prerequisites:  
Phys 5A/L, 5B/M & 5C/N

### ECE 103/L

Signals and Systems

Prerequisites: ECE 101/L  
and AM 20 or Math 24

### ECE 135/L

Electromagnetic Fields  
and Waves

Prerequisites: ECE 101/L,  
and Math 24 or AM 20 or  
Phys 116A

### ECE 151

Communications  
Systems

Prerequisites: ECE 101/L,  
ECE 103, and STAT 131 or  
CSE 107

## Electronics Courses

### ECE 101/L

Electronic Circuits

Prerequisites:  
Phys 5C/N and Math 24 or  
Phys 116A or concurrent or  
previous enrollment in AM 20

### CSE 100/L

Logic Design

Prerequisites: CSE 12  
Requires declared major  
status

### ECE 171/L

Analog Electronics

Prerequisites:  
ECE 101/L

**Elective Requirements:** In addition to the above, Electrical Engineering majors must complete 4 additional upper-division courses (minimum of 3 courses from one track). Unlisted graduate-level courses may be used to fulfill an elective requirement with prior department approval. **Most elective courses have additional prerequisites. They are subject to change frequently. Please visit <https://catalog.ucsc.edu/current/General-Catalog/Courses/ECE-Electricaland-Computer-Engineering> to ensure you have met them.**

Design Elective: One of the four concentration courses chosen must include at least one of the following design electives: ECE 118, ECE 157/L, ECE 121, or ECE 173. *The design elective must be taken before ECE 129A.*

### Comprehensive Requirement (ECE129ABC or ECE 129A & ECE 195):

#### ECE 129A Capstone Project I

Prerequisites: ECE171/L, CSE 100/L, and at least one design elective.

#### ECE 129B Capstone Project II

• Prerequisites: ECE 129A

#### ECE 129C Capstone Project III

• Prerequisites: ECE 129B

#### ECE 195\* (10 units)

Senior Thesis

Prerequisites: ECE 129A

\*Requires department approval. Ask BE Advising  
for more information

### Exit Requirements:

1. Exit Survey
2. Exit Interview
3. Maintain a 2.5 cumulative GPA in all required and elective courses for the major, OR submit a portfolio for department review, OR submit a senior thesis with department approval.

## Electrical Engineering B.S. Degree 2024-2025 Curriculum

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Note:  
The prerequisites listed on this curriculum chart are accurate as of August 15, 2024 according to UCSC's general catalog. Prerequisites listed on this chart are subject to change and students should refer to the catalog for the most up to date requirements.