

Robotics Engineering B.S. Degree 2024-2025 Curriculum Chart

Math Courses

MATH 19A

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

MATH 19B

Calculus II
Prerequisites:
Math 19A

MATH 23A

Vector Calculus
Prerequisites: Math 19B

or AM 30

Multivariate
Calculus for
Engineers

Prerequisites: Am 10 or
Math 21; Math 19B

CSE 16

Discrete Math
Prerequisites:
Math 19A or 19B

AM 10

Engr. Math
Methods I
Prerequisites: Math
Placement or Math 3

or MATH 21

Linear Algebra
Prerequisites: Math 19A

CSE 107

Probability & Statistics
Prerequisites:
CSE 16 & AM 30 or Math 22 or
Math 23A

or STAT 131

Probability
Theory

Prerequisites:
Math 19B or 20B

AM 20

Engr. Math Methods
II
Prerequisites: Math 19B
and AM 10 or Math 21

OR

MATH 24

Ordinary
Differential
Equations

Prerequisites: Math 23A

Computer Engineering Courses

CSE 12

Computer Systems
& Assembly
Language
Prerequisites:
CSE 20

*CSE 20

Beginning
Programming in
Python
*Can be satisfied
by passing the CS
20 testout

ECE 13

Computer Systems
& C Programming
Prerequisites:
CSE 12

CSE 30

Programming
Abstractions: Python
Prerequisites: CSE 20; and
MATH 3 or MATH 19A or
Math Placement score of
400 or more

CSE 101

Introduction to Data
Structures and
Algorithms

Prerequisites:
CSE 12; ECE 13; and CSE 16;
and CSE 30; and MATH 19B

Physics Courses

PHYS 5A/L

Mechanics
Prerequisites:
Math 19A;
Concurrent or previous
enrollment in Math 19B
required

PHYS 5C/N

Electricity &
Magnetism
Prerequisites:
PHYS 5A/L and Math 19B

Engineering Mechanics Course

ECE 9

Statics and Mechanics of
Materials
Prerequisites: MATH 19A; and
PHYS 5A/L; and AM 10 or
MATH 21.

Electronics Courses

CSE 100/L

Logic Design
Prerequisite: CSE 12
Requires declared major status

ECE 101/L

Electronic Circuits
Prerequisites: PHYS 5C/N and
Math 24 or PHYS 116A, or
previous or concurrent
enrollment in AM 20

ECE 121

Microcontroller
System Design
Prerequisites: CSE 12 and ECE
13. Previous or concurrent
enrollment in ECE 101/L

ECE 167

Sensing & Sensor
Technologies
Prerequisites:
ECE 13 and ECE 103/L

Electives

Advanced Robotics Elective*

Elective**

* Please refer to the UA website for the
list of approved courses for the Adv.
Robotics elective

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list of approved courses for this elective
requirement

Robotics

ECE 118*

Intro to Mechatronics
Prerequisites:
ECE 101/L, CSE 100/L, and
ECE 13

ECE 10

Fundamentals of Robot
Kinematics & Dynamics
Prerequisites:
ECE 9 and AM 20 or Math 24

*ECE 141 and ECE 167 highly recommended but not required

Electrical Engineering Courses

ECE 141

Feedback Control
Systems
Prerequisite: ECE 103

ECE 103/L

Signals & Systems
Prerequisites:
ECE101/L and AM
20 or Math 24

Capstone (choose one option)

ECE 129A, 129B, & 129C

Capstone Project I, II, & III

Prerequisites (both):
CSE 100, ECE 118 ECE
121, and completion of
the Entry Level Writing
and Composition
requirements

ECE 129A Capstone Project I & ECE 195* (10 credits)

Senior Thesis Research

*Students
interested in ECE
195 should come
to BE undergrad
advising for
additional
information

The Disciplinary Communication requirement (DC) is satisfied by completing one of the capstone options.

Exit Requirements

1. Exit Survey <https://engineering.ucsc.edu/departments/electrical-and-computer-engineering/robotics-engineering-bs-portfolio>
2. Exit Interview <https://undergrad.soe.ucsc.edu/current-students/graduating-seniors/exit-survey>
3. Portfolio

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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.