## Math Courses
- **MATH 19A**: Calculus I
- **MATH 19B**: Calculus II
- **MATH 23A**: Vector Calculus
- **AM 30**: Multivariate Calculus for Engineers
- **MATH 21**: Linear Algebra
- **AM 10**: Engr. Math Methods I
- **ECE 103/L**: Signals & Systems
- **AM 20**: Engr. Math Methods II
- **CSE 107**: Probability & Statistics
- **CSE 16**: Discrete Math

### *Strongly recommended*

## Programming
- **CSE 101**: Algorithms & Abstract Data Types
- **CSE 12/L**: Computer Systems & Assembly Language
- **CSE 13E**: Embedded Systems & C Programming
- **CSE 20**: Beginning Programming in Python
- **CSE 201**: Programming Abstractions: Python

## Science Courses
- **PHYS 5A/L**: Mechanics
- **ECE 9**: Intro. to Statics, Dynamics & Biomechanics
- **PHYS 5C/N**: Electricity & Magnetism
- **ECE 10**: Fundamentals of Robot Kinematics & Dynamics

## Digital Electronics
- **CSE 100/L**: Logic Design
- **ECE 101/L**: Electronic Circuits
- **CSE 121/L**: Microprocessor System Design

## Electives
- **ECE 118/L**: Intro to Mechatronics
- **ECE 141**: Feedback Control Systems
- **ECE 167/L**: Sensing & Sensor Technologies

### Advanced Robotics Elective*

### Elective**

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

**Please refer to the UA website for the list of approved courses for this elective requirement

## Capstone (choose one option) #
- **ECE 129A, 129B, & 129C**: Capstone Project I, II, & III
- **ECE 129A & CMPE 195**: Senior Thesis (10 credits)

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

### Exit Requirements
1. Portfolio: [https://www.soe.ucsc.edu/departments/computer-engineering/undergraduate/undergraduate-portfolio](https://www.soe.ucsc.edu/departments/computer-engineering/undergraduate/undergraduate-portfolio)
2. Exit Survey: [https://ua.soe.ucsc.edu/exit-survey](https://ua.soe.ucsc.edu/exit-survey)
3. Exit Interview

https://undergrad.soe.ucsc.edu • advising@soe.ucsc.edu • (831) 459-5840 • 08/09/2019
## Robotics Engineering B.S. Degree
### 2019-2020 Curriculum Chart

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### Approved List of Upper Division Electives

Please refer to the Undergraduate Advising website for the list of approved electives

- Non Advanced Robotics Engineering Electives: [https://undergrad.soe.ucsc.edu/non-advanced-robotics-engineering-electives](https://undergrad.soe.ucsc.edu/non-advanced-robotics-engineering-electives)
- Advanced Robotics Electives: [https://undergrad.soe.ucsc.edu/advanced-robotics-electives](https://undergrad.soe.ucsc.edu/advanced-robotics-electives)

### Notes:
- The School of Engineering has different major declaration deadlines than the UCSC Academic/Administrative calendar. Our deadlines and process can be found on: [https://ua.soe.ucsc.edu/declare-your-major](https://ua.soe.ucsc.edu/declare-your-major)
- All students admitted to a School of Engineering major, or seeking admission to a major, must take all courses required for that major for a letter grade.
- Courses in which you receive a grade of C-, D+, D, or D- earn credit toward graduation, but cannot be used to satisfy a major requirement or a general education requirement, and cannot satisfy a prerequisite for another course.
- In addition to this list, any 5-unit CSE or ECE graduate course (200+) may also be used as an elective.
- At most, only one elective may be substituted by an upper-division individual or field study (CSE, ECE 193 or 198) with approval from the undergraduate director.

### Student Information

- **Student Name:**
- **Staff Advisor:**
- **Faculty Advisor:**

- [ ] I have discussed the BS/MS program with my advisor.