

Senior Elective Requirements

- ✓ 12 Courses and 48 units minimum
- ✓ Capstone Project (CS version or ECE version)
- ✓ 2 Dept Approved Sequences
 - Cannot “double dip”
 - CMPSC 176A and CMPSC 171 or CMPSC 176A and CMPSC 176B, cannot use a course twice.
- ✓ 6 Approved Elective Courses of your choosing

Approval Process

- Discuss your senior elective plans with your faculty advisor and get course recommendations.
- Faculty Advisor must sign and approve your senior elective plans
- Bring/email the signed form to ECE Student Office for final approval






UNIVERSITY OF CALIFORNIA SANTA BARBARA
ELECTRICAL AND COMPUTER ENGINEERING

Elective Sheets are Contracts


- You **MUST** complete the required number of courses.
- You do not have to list **ALL** electives you plan to take, just the required minimum.
- You are responsible for knowing the prerequisites of the courses.
- Run a progress report, don't forget to include completed & in progress electives.
- **PLAN CAREFULLY!!**




 2021-2022 Computer Engineering Faculty Advisor Assignments 		
Last Name	Faculty Advisor	Faculty Email
A – C	TBA	
D – F		
G – H		
I – K		
L – O		
P – S		
T – U		
V – Z		


UNIVERSITY OF CALIFORNIA SANTA BARBARA
ELECTRICAL AND COMPUTER ENGINEERING

CE SENIOR ELECTIVE FORM





Computer Engineering CE Senior Electives 2016-2017 & Later

Computer Engineering Program - UC Santa Barbara

LAST NAME, FIRST NAME _____ PHONE # _____

UCSB EMAIL _____ PHONE # _____

STUDENTS ARE RESPONSIBLE FOR DETERMINING AND TAKING THE NECESSARY PREREQUISITES FOR THE CLASSES LISTED BELOW AS THEY DO CHANGE. FOR THE MOST UP-TO-DATE INFORMATION, CHECK WITH THE COMPUTER SCIENCE STUDENT OFFICE FOR CS COURSES AND THE ECE STUDENT OFFICE FOR ECE COURSES.

COURSE – Include all completed electives	UNITS
"Capstone" Project (ECE189A/B/C or CS 189A/B)	
Sequence 1 (2 courses min.)	
Sequence 2 (2 courses min.)	
Other Electives	
MIN. REQUIRED	45
TOTAL UNITS:	

Total Units: A minimum total of at least twelve courses (45 units) including two sequences plus a Capstone Project. **Include all completed CE senior electives.**

Student's Signature _____ Date _____

Faculty Advisor's Signature _____ Date _____

ECE Student Office _____ Date _____ 10/13/21

Check Here	Sequence Topics	Senior Elective Sequences (choose 2)		
	Computer Networks	<ul style="list-style-type: none"> - CMPSC 178A (Intro to Comp Communication Networks) AND - CMPSC 178B (Network Computing) 		
	Computer Systems Design	<ul style="list-style-type: none"> - ECE 153A OR CMPSC 153A (Hardware/Software Interface) AND - ECE 153B (Sensor and Peripheral Interface Design) 		
	Distributed Systems	<ul style="list-style-type: none"> - CMPSC 171 (Distributed Systems) AND ONE OR BOTH OF THE FOLLOWING COURSES: - CMPSC 178A (Intro. to Computer Networks) - CMPSC 178B (Network Computing) 		
	Multimedia	<p>Choose TWO OF EACH OF THE FOLLOWING COURSES:</p> <ul style="list-style-type: none"> - ECE 178 (Fundamentals of Computer Image Processing) - ECE 161 OR CMPSC 161 (Introduction to Computer Vision) - ECE 160 (Multimedia Computing) 		
	Programming Languages	<ul style="list-style-type: none"> - CMPSC 160 (Translation of Programming Languages) - CMPSC 162 (Programming Languages) <p><small>(Note: CMPSC 130, a Junior year course, is the prerequisite for both CMPSC 160 & 162)</small></p>		
	Real-Time Computing & Control	<ul style="list-style-type: none"> - ECE 135X (Feedback Control Systems - Theory and Design) (8 units) - ECE 147B (Digital Control Systems - Theory and Design, 6 units) <small>(Note: ECE 147A prerequisite in ECE 135AB - Junior year)</small> 		
	Very Large Scale Integration (VLSI)	<ul style="list-style-type: none"> - ECE 122A (VLSI Principles) OR ECE 123 (High-Performance Digital Circuit Design) - ECE 122B (VLSI Architecture and Design) 		
	Robotics	<ul style="list-style-type: none"> - ECE 179D (Introduction to Robotics: Dynamics and Control) - ECE 179F (Introduction to Robotics: Planning and Kinematics) 		
	Signals & Systems	<ul style="list-style-type: none"> - ECE 130A (Signal Analysis & Processing) - ECE 130B (Signal Analysis & Processing) 		
	Design & Test Automation	<ul style="list-style-type: none"> - ECE 157A (Machine Learning in Design and Test Automation) - ECE 157B (Artificial Intelligence in Design and Test Automation) 		
	Machine Learning	<ul style="list-style-type: none"> - CMPSC 165A (Artificial Intelligence) - CMPSC 165B (Machine Learning) 		
	Systems Software Architecture	<ul style="list-style-type: none"> - CMPSC 170 (Operating Systems) - CMPSC 171 (Distributed Systems) 		
Required Senior "Capstone" Computer Systems Project				
12 Units	ECE 189A/B/C (3 cr. course, 4 units/yr., 12 units) <small>(Note: ECE 153B, Sensor & Peripheral Interface Design, is a prerequisite for ECE 189A/B/C)</small>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">OR</td> <td style="width: 50%; text-align: center;">CMPSC 189A/B (2 cr. course, 4 units/yr., 8 units) <small>(Note: CMPSC 178, Advanced Applications Programming, is a prerequisite course. CMPSC 189A/B)</small></td> </tr> </table>	OR	CMPSC 189A/B (2 cr. course, 4 units/yr., 8 units) <small>(Note: CMPSC 178, Advanced Applications Programming, is a prerequisite course. CMPSC 189A/B)</small>
OR	CMPSC 189A/B (2 cr. course, 4 units/yr., 8 units) <small>(Note: CMPSC 178, Advanced Applications Programming, is a prerequisite course. CMPSC 189A/B)</small>			
Acceptable Additional Courses				
	CMPSC 120B (Data Structures and Algorithms II)	4 ECE 130C (Signal Analysis and Processing)		
	CMPSC 130 (Autocode and Formal Languages)	4 ECE 147A (Feedback Control Sys-Theory & Design)		
	CMPSC 160 (Translation of Programming Languages)	4 ECE 147B (Digital Control Theory & Design)		
	CMPSC 162 (Programming Languages)	4 ECE 149 (Game Theory)		
	CMPSC 153A (Hardware/Software Interface)	4 ECE 150 (Mobile Embedded Systems)		
	CMPSC 165B (Machine Learning)	4 ECE 153A/CMPSC 153A (Hardware/Software Interface)		
	CMPSC 170 (Operating Systems)	4 ECE 153B (Sensor and Peripheral Interface Design)		
	CMPSC 171 (Distributed Systems)	4 ECE 154B (Advanced Computer Architecture)		
	CMPSC 174A (Fundamentals of Database Systems)	4 ECE 157A (Machine Learning in Design & Test Automation)		
	CMPSC 178A (Intro to Comp Communication Networks)	4 ECE 157B (Artificial Intelligence in Design & Test Automation)		
	CMPSC 178B (Network Computing)	4 ECE 160 (Multimedia Computing)		
	CMPSC 178C (Advanced Topics in Internet Computing)	4 ECE 178 (Fund. of Computer Image Processing)		
	CMPSC 177 (Computer Security)	4 ECE 179D (Intro to Robotics: Dynamics & Control)		
	CMPSC 178 (Introduction to Cryptography)	4 ECE 179F (Intro to Robotics: Planning & Kinematics)		
	ECE 122A (VLSI Principles)	4 ECE 180 (Introduction to Deep Learning)		
	ECE 122B (VLSI Architecture and Design)	4 ECE 181/CMPSC 181 (Introduction to Computer Vision)		
	ECE 123 (High-Performance Digital Circuit Design)	4 ECE 184A-184Z (except ECE 184H) (Special Topics in ECE)		
	ECE 130A (Signal Analysis and Processing)	4 ECE 190A (Advanced Applications Programming)		
	ECE 130B (Signal Analysis and Processing)	4		

10/13/21

Capstone Prerequisite Courses – Important, Take Note!

If you are interested in CS189, complete **both** capstone prerequisites. Why? CS189 has a limited number of spaces. Without **both** prerequisites completed an additional year could be required to graduate if only CS 156 is completed and you are unable to obtain a spot in CS 189.

- ECE 189A- CE Capstone prerequisite: **ECE 153B** (Sensor & Peripheral Interface Design) – **Winter 2022** (prereq. is ECE 152A w/min. grade of C-). Enroll pass 1 for Winter 2022.
- CS 189A - CS Capstone prerequisite: **CS 156** (Advanced Applications Programming) – **W22, S22** (prereqs. – CS 24 & CS 32 with grade of C or better)

CE Senior Elective Summary

- Capstone Project: ECE 189ABC, 12 units;
 - or*
 - CS 189AB, 8 units
-
- 12 courses
 - 48 units
 - Capstone
 - Two (2) sequences
 - 5-6 single electives



Important
FORMS

- Include your completed electives!
- Run quarterly progress report

Elective Course Scheduling Resources

ECE course scheduling, go to ece.ucsb.edu

Department of Electrical & Computer Engineering

About Research Graduate Undergraduate News Events People Giving

4 Year Course Plan
College of Engineering's course grid to help ECE students complete the required units

Senior Electives and Sequences
In the Junior year, students select sequence topics to satisfy ECE Electives to be taken in the Sr. year

ECE 188 Senior Capstone Projects
In the Senior year, all ECE majors are required to take the ECE 188 Senior EE Project courses

Degree Requirements
To receive a Electrical Engineering degree from UCSB, students must satisfy the following requirements:

- MAJOR – Electrical Engineering (EE) Degree
- GENERAL EDUCATION – College of Engineering (CoE) & UC, Santa Barbara

[EE Bachelor of Science Degree Overview \(2021-22 GEAR pgs 36-37\)](#)

Degree requirements listed below are for the academic year of 2021-22

- MAJOR - Electrical Engineering Degree Requirements

* Major requirements are administered by the Electrical and Computer Engineering Department

Pubs & Courses

GEAR (General Engineering Academic Requirements): ECE, COE, and UCSB requirements, overviews & more – from the most current year back to 2012-13

UCSB General Catalog: major & minor requirements, course descriptions, prerequisites & more

UCSB Schedule of Classes: all undergraduate and grad course schedules listed by quarter

ECE Undergrad Courses (2021-22): tables of undergraduate and graduate courses instructed each quarter

ece.ucsb.edu/undergrad/curriculum

Elective Course Scheduling Resources

Department of Electrical & Computer Engineering

About Research Graduate Undergraduate News Events People Giving

Undergraduate Courses

Courses Offered: X = ECE Instructor | XD = External Dept Instructor

Number	Undergraduate Course	F2021	W2022	S2022	M2022**
1A	Computer Engineering Seminar		X		
1B	Ten Puzzling Problems in Computer Engineering			X	
3	Introduction to Electrical Engineering	X			
5	Introduction to Electrical and Computer Engineering		X		
10A/10AL	Foundations of Analog and Digital Circuits & Systems	X	X		
10B/10BL	Foundations of Analog and Digital Circuits & Systems		X	X	
10C/10CL	Foundations of Analog and Digital Circuits & Systems	X		X	
15A	Fundamentals of Logic Design		X		
94R	Sensors and Sensing Technology				
120A	Integrated Circuit Design & Fabrication		X		
120B	Integrated Circuit Design & Fabrication			X	
122A	VLSI Principles	X			
122B	VLSI Architecture and Design		X		
130A	Signal Analysis & Processing	X	X		
130B	Signal Analysis & Processing		X	X	
130C	Signal Analysis & Processing			X	
132	Intro to Solid State Electronic Devices	X			
134	Introduction to Fields & Waves	X			

www.ece.ucsb.edu

Elective Scheduling Computer Science Courses

University of California, Santa Barbara

UC SANTA BARBARA
Computer Science

About Research Education Diversity Equity & Inclusion People Happenings Give

Overview Special Topics and Seminars Course Schedules Course Descriptions Graduate Courses

All CS courses (both undergrad and graduate) require CS major status to enroll. A subset of courses is open to non-majors that require CS courses as listed on their undergrad or graduate major requirements degree sheet. Otherwise, non-majors may request to enroll in CS courses during Pass 3 if all students whose major requires the course have registered, there is course space available, **and** students meet the listed course prerequisites. However, due to the high interest in CS at UCSB, enrollment demand for CS courses will likely exceed actual enrollment capacity limits in many courses each quarter.

CS courses also have prerequisite course-requirements that must be completed prior to (and in some cases concurrently with, if specified) enrolling in a course. The prerequisite rules are specified within the course descriptions.

CS employs the UCSB-wide waiting list for all courses and uses the waitlist to manage any additional available spots for enrollment. A course waitlist will activate once a course is full and/or closed. If a waitlist is activated, all students (CS majors and non-majors) should add themselves to the waitlist for potential enrollment consideration. Our waitlist priority order is 1) CS majors; 2) non-majors that require the course for their major, with sub-priority to the graduating seniors; 3) remaining non-majors interested in the course.

Important Course Related Links:

- [Course Descriptions](#)
- [Course Pre-Requisites](#)
- [UCSB General Catalog – Computer Science](#)
- [UCSB Course Schedules – All courses \(by quarter\)](#)
- [Special Projects Form \(CS 192, 193, 196\)](#)
- [CS 291, 292 and 293 Area and Topic List](#)
- [Graduate Seminars and Special Topics](#)
- [2020–2021 CS Courses](#)
- [2021–2022 CS courses \(note: if Google shows an error, try opening the link in Incognito or try to access the link later\)](#)
- [Waitlist Information – Office of the Registrar](#)

****NOTE: Students are responsible for checking the CS courses list regularly, it is subject to change.**

<https://cs.ucsb.edu/education/courses/overview>

DUE DATES

- Elective Sheets are due ***no later than Friday, May 27, 2022!***
- Students who have not turned in an elective sheet will be placed on a **REGISTRATION BLOCK!**





Progress Checks

- Can be run on GOLD using the degree audit system.
- GE/College level questions refer to the College of Engineering advisors, coe-info@engineering.ucsb.edu, or:
 - Frances Fouch francesf@engineering.ucsb.edu
 - Shariq Hashmi shashmi@engineering.ucsb.edu
 - Sarah Ocampo socampo@engineering.ucsb.edu
- Major level questions refer to the ECE Student Office to ugrad-advisor@ece.ucsb.edu



BS/MS Programs

BS/MS options available for Computer Engineering undergraduates:

- BS in CE and MS in ECE: email **Val de Veyra**, val@ece.ucsb.edu
- BS in CE and MS in Computer Science: see the Computer Science website: cs.ucsb.edu/education/undergrad/special-programs
- Applications for the BS/MS in ECE are usually due at the end of the spring quarter of the junior year. As this is an accelerated program, it is expected that all of the required courses for the CE major are completed including all of the junior required courses. GRE exams are not required to apply.



**2021 Fall
Career & Internship Fair
Science, Technology
& Engineering**

**October 27, 2021
11am-4pm**

career.ucsb.edu

Maddie W. Foster

Career Counselor/Peer & Practicum Supervisor
Engineering + Technology
Undocumented Student Liaison



Career Services

Career Peer Advising is available Monday-Friday from 9am-4pm in person and via Zoom for 15-minute sessions. More information at <https://career.ucsb.edu/students#career-advising>

Have your resume and cover letter reviewed via our Document Review system.

See <https://career.ucsb.edu/students#document-review>

Practice your interviewing skills at <https://career.ucsb.edu/students#interview-skills>

For Engineering + Technology career guidance, see <https://career.ucsb.edu/career-paths/engineering-technology> or contact Maddie Foster directly at Maddie.Foster@sa.ucsb.edu

Maddie.Foster@sa.ucsb.edu

career.ucsb.edu



UNIVERSITY OF CALIFORNIA SANTA BARBARA
ELECTRICAL AND COMPUTER ENGINEERING

QUESTIONS?



Beth English

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or

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