



Curriculum for B.S. Degree in Electrical Engineering (122 units)

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

(Effective Fall 2024) revised 07/01/2024

General Education (21 units)

Lower Division General Education Requirements (21 units)

	Oral Communication (3)
	Written Communication (3)
	United States History (3) *
	United States Constitution and State/Local Government (3)
BLOCK C – Humanities	Select 1 course in C1 (3) *
BLOCK E – Life Long Learning	First-time freshmen need to take ENGR 1500 Introduction to Engineering and Technology (3); Transfer students without equivalent credit need to select 1 course (3) in Block E
BLOCK F – Ethnic Studies	Select 1 course (3) *

Upper Division General Education Requirements (0 units)

*Students need to select the **US History**, **C1**, and **F** courses to fulfill the requirement of one race/ethnicity (**re**) and one diversity (**d**) course, or two **re** courses.

Lower Division Major Requirements (40 units)

CHEM 1040	General Chemistry for Engineers (4) <i>Prerequisites:</i> Completion of GE Math (B4) or GE Math supported instruction is not required (Math Placement Category I or II). Must be an engineering major.
EE 2040	Circuit Analysis I (3) <i>Co-requisite:</i> MATH 2120, PHYS 2200
EE 2049	Electrical Measurements and Circuits Laboratory (1) <i>Prerequisites:</i> EE 2040
EE 2440	Digital Engineering (3) <i>Prerequisites:</i> None
EE 2449	Digital Logic Laboratory (1) <i>Co-requisites:</i> EE 2440
EE 2450	Embedded System Programming I (3) <i>Prerequisites or Co-requisites:</i> ENGR 1500
MATH 2110	Calculus I (4) <i>Prerequisites:</i> MATH 1040 with a minimum C grade, or MATH 1081 and MATH 1083 both with a minimum C grade, or MATH 1082 and MATH 1083 both with a minimum C grade, or ESM 1082 and MATH 1083 both with a minimum C grade, or satisfactory score on placement examination; students with a grade of less than B- in either MATH 1040, or in one of MATH 1081 or MATH 1083, or in one of MATH 1082 or MATH 1083, or in one of ESM 1082 or MATH 1083 must enroll concurrently in MATH 2111.
MATH 2120	Calculus II (4) <i>Prerequisites:</i> MATH 2110 with a minimum C grade; students with a grade of less than B- in MATH 2110 must enroll concurrently in MATH 2121.
MATH 2130	Calculus III (3) <i>Prerequisites:</i> MATH 2120 with a minimum C grade; students with a grade of less than B- in MATH 2120 must enroll concurrently in MATH 2131
MATH 2150	Differential Equations (3) <i>Prerequisites:</i> MATH 2130
PHYS 2100	General Physics I, Mechanics (4) <i>Prerequisites:</i> MATH 2110 with a minimum C grade
PHYS 2200	General Physics II, Electromagnetism and Circuits (4) <i>Prerequisites:</i> PHYS 2100 with a minimum C grade
ENGL 2030	Introduction to Technical Writing (3) <i>Prerequisites:</i> ENGL 1010

Upper Division Major Requirements (45 units)

EE/ME/CE 3000	Economics for Engineers (3) <i>Prerequisites:</i> Junior or Senior Standing
ENGR 3010	Ethics and Professionalism in Engineering (3) <i>Prerequisites:</i> Junior or Senior Standing
EE 3003	Linear Algebra and Numerical Analysis in Electrical and Computer Engineering (3) <i>Prerequisites:</i> EE 2450, <i>Co-req:</i> EE 2040
EE 3020	Signals and Systems (3) <i>Prerequisites:</i> EE 2040, <i>Co-req:</i> MATH 2150
EE 3030	Circuit Analysis II (3) <i>Prerequisites:</i> EE 3020
EE 3040	Probability, Random Variable, and Random Processes (3) <i>Co-requisites:</i> MATH 2130
EE 3050	Electric and Magnetic Fields (3) <i>Prerequisites:</i> EE 2040
EE 3200	Analog Communication Systems (3) <i>Prerequisites:</i> EE 3020
EE 3300	Electric Machines (3) <i>Prerequisites:</i> EE 2040
EE 3450	Embedded Systems Programming II (3) <i>Prerequisites:</i> EE 2450

EE 3600	Control Systems I (3) <i>Prerequisites:</i> EE 3020
EE 3700	Electronics I (3) <i>Prerequisites:</i> EE 2040
EE 3810	Sensors, Data Acquisition, & Instrumentation w/ App. in Biomedical Engr. (3) <i>Prerequisites:</i> EE 2049
EE 4961	Senior Design I (3) <i>Prerequisites:</i> Completion of Blocks A1 and A2, ENGR 3010, EE/ME/CE 3000, EE 3020, EE 3450, and EE3810
EE 4962	Senior Design II (3) <i>Prerequisites:</i> EE 4961 with grade of C or higher

Upper Division Technical Electives (16 units)

Select 5 lecture courses and 1 lab from the following. (3 lecture and 1 lab courses in one specialty with advisor's approval.)

Lecture Electives (15 units):

EE/ME/CS 3420	Introduction to Autonomous Robotic Systems (3) <i>Prerequisites:</i> EE 2450
EE 3710	Electronics II (3) <i>Prerequisites:</i> EE 3700
EE 3720	Digital Electronics (3) <i>Prerequisites:</i> EE 2440, EE 3700
EE 4130	Systems Engineering (3) <i>Prerequisites:</i> EE 3600
EE 4200	Digital Communication Systems (3) <i>Prerequisites:</i> EE 3200, EE 3040
EE 4210	Coding for Communications (3) <i>Prerequisites:</i> EE 3200
EE 4220	Digital Signal Processing (3) <i>Prerequisites:</i> EE 3200
EE 4230	Antennas (3) <i>Co-requisites:</i> EE 3050
EE 4240	Fiber Optics (3) <i>Prerequisites:</i> EE 3200
EE 4250	Digital Image Processing (3) <i>Prerequisites:</i> EE 3200
EE 4300	Introduction to Power Systems Engineering (3) <i>Prerequisites:</i> EE 3300
EE 4310	Power Systems Analysis (3) <i>Prerequisites:</i> EE 4300
EE 4320	Electric Power Distribution (3) <i>Co-requisites:</i> EE 4300
EE 4330	Power Electronics (3) <i>Prerequisites:</i> EE 3700
EE 4340	Electromagnetic Energy Conversion (3) <i>Prerequisites:</i> EE 3300
EE 4400	Data Communications and Networking (3) <i>Prerequisites:</i> EE 3200
EE 4420	Multimedia Networking (3) <i>Prerequisites:</i> EE 4400, Knowledge of MATLAB
EE 4440	Computer Organization (3) <i>Prerequisites:</i> EE 3450
EE 4450	Embedded Architectures (3) <i>Prerequisites:</i> EE 3450
EE 4480	Advanced Digital Design (3) <i>Prerequisites or Co-requisites:</i> EE 4440
EE 4600	Applied Control System Design and Simulation (3) <i>Prerequisites:</i> EE 3600
EE 4610	Digital Control Systems (3) <i>Prerequisites:</i> EE 3600
EE 4620	Modern Control Systems (3) <i>Prerequisites:</i> EE 3020
EE 4630	Machine Learning Principles and Applications (3) <i>Prerequisites:</i> EE 3020, EE 3040
EE 4710	Analog Integrated Circuits (3) <i>Prerequisites:</i> EE 3700
EE 4720	CMOS VLSI Design (3) <i>Prerequisites:</i> EE 3720
EE 4730	Optoelectronics (3) <i>Prerequisites:</i> EE 3700
EE 4810	Biomedical Devices (3) <i>Prerequisites:</i> EE 2040
EE 4820	Biomedical Signal Processing (3) <i>Prerequisites:</i> EE 3020

Laboratory Electives (1 unit):

EE 3209	Communications Laboratory (1) <i>Prerequisites:</i> EE 3200
EE 3309	Electromagnetic Energy Conversion Laboratory (1) <i>Prerequisites:</i> EE 3300, EE 2049
EE 3709	Electronics Laboratory (1) <i>Co-requisites:</i> EE 3710
EE 4229	Digital Signal Processing Laboratory (1) <i>Prerequisites:</i> EE 3020, <i>Co-req:</i> EE 4220
EE 4459	Systems Design Tools and Implementation Laboratory (1) <i>Prerequisite:</i> EE 2450
EE 4689	Control Systems Laboratory (1) <i>Co-requisites:</i> EE 3600

Additional Courses That May Count Towards Major with Department Approval:

EE 2801	Intro to Biomed Engineering (3) <i>Prerequisites:</i> None
EE 3540	Special Topics in Electrical Engineering (1-3) <i>Prerequisites:</i> Department Permission
EE 4009	Professional Engineering Practice (1) <i>Prerequisites:</i> Department Permission under the conditions: acceptance by the corresponding worksite; junior, senior, or graduate standing; min 2.5 GPA for undergraduates and 3.0 for graduates.
EE 4540	Special Topics in Electrical Engineering (1-3) <i>Prerequisites:</i> Senior standing or graduate standing in EE, enrollment subject to approval of instructor in charge. Permission needed by the EE Department.
EE 4990	Undergraduate Directed Study (1-3) <i>Prerequisites:</i> Department Permission