Bachelor of Science in Electrical and Computer Engineering
Student Planning Guide

	Fall	Winter	Spring
FIRST YEAR	MATH 11 Calculus I	MATH 12 Calculus II	MATH 13 Calculus III
	CHEM 11 OR Univ. Core	PHYS 31 Physics for Engineers I	PHYS 32 Physics for Engineers II
	CSEN 10 Introduction to Programming	CSEN 11 Advanced Programming	CSEN 12 Data Structures
	ENGR 1/1L Intro to Eng. (1 unit/1unit)	ECEN 20 Emerging Areas	ECEN 21 Introduction to Logic Design
	Critical Thinking and Writing I	Critical Thinking and Writing II	

	Fall	Winter	Spring
SOPHOMORE	ECEN 50 Circuits I	ECEN 100 Circuits II	ECEN 115 Electronics
	ECEN 120 Microprocessor System Design	ECEN 122 Computer Architecture	ECEN 121 Real-time Embedded Systems
	MATH 14 Calculus IV	AMTH 106 Differential Equations	Math 51 Discrete Math
	Cultures and Ideas I	Cultures and Ideas II	University Core - RTC 1 (Note 1)

	Fall	Winter	Spring
JUNIOR	AMTH 108 Probability and Statistics	CSEN 177 Operating Systems	ECEN 133 Digital Signal Processing
	PHYS 33 Physics for Engineers III	Math 53 Linear Algebra	ECEN 142 Communications and Networks
	CSCI 163 Algorithms	University Core - Ethics (Note 1)	ECEN 192 Intro to Sr. Design (1 unit) ECEN 192L- Lab (1 unit)
	ENGL 181 Eng. Comm. (4 units)	ECEN Elective 1 (Note 3)	ECEN Elective 2 (Note 3)

	Fall	Winter	Spring
SENIOR	ECEN 194 Design Project I (2 units)	ECEN 195 Design Project II (2 units)	ECEN 196 Design Project III (1 unit)
	Math Science Elective (Note 2)	Professional Development (Note 4)	Optional Elective or BS/MS option (Note 5)
	ECEN Elective 3 (Note 3)	Optional Elective or BS/MS option(Note 5)	Optional Elective or BS/MS option (Note 5)
	University Core	University Core	University Core

Legend:
- Humanities & Social Science (yellow)
- Math & Science (blue)
- Major (green)
- Technical Electives (orange)

If **study abroad** or **COOP** experience is selected in the junior year, courses may be moved to senior year.
Minimum requirement of units for Electrical and Computer Engineering Degree is **191 units.**

Note 1: ENGR 16 and ENGR 19 are recommended for engineering students as a way to satisfy the RTC 1 and Ethics requirements in the Core curriculum

Note 2: Math Science Elective may be one of the following:
CHEM 11 or 12, PHYS 34, 113 or 121, MATH 105 or 123

Note 3: Three undergraduate ECEN 100-level elective courses: At least one elective must be selected from group D – "Digital and Embedded Systems". With advisor approval at most one may be selected from CSEN courses.

Digital and Embedded Systems (D)	
123	Mechatronics
127	Advanced Logic Design
131	Introduction to Robotics
162	Quantum and Parallel Algorithms for Scientific Computing

RF and Communications (C)	
104	Electromagnetics I
105	Electromagnetics II
141	Communication Systems
144	Microwave Circuit Analysis and Design

Power Systems (P)	
164	Introduction to Power Electronics
183	Power Systems Analysis
184	Power System Stability and Control

IC Design (I)	
116	Analog Integrated Circuit Design
151	Device Electronics for IC Design
152	Integrated Circuit Fabrication Process Technology
153	Digital Integrated Circuit Design
156	Introduction to Nanotechnology

Systems (S)	
110	Linear Systems
130	Control Systems
132	Design of Assistive Technologies
158	Introduction to Neuromorphic computing
160	Chaos Theory, Metamathematics and the Limits of Science
161	The Beauty of Nature and the Nature of Beauty
167	Medical Imaging Systems

Note 4: Professional Development
Four or more units in the study abroad program that does not duplicate other coursework.
Three units in ENGR 110.
Preparation for graduate study in electrical and computer engineering with completion of two or more additional units of upper-division or graduate-level courses.
Completion of an approved minor or second major in any field of engineering or science.
Two units of Peer education experience.
Two units of undergraduate research, ECEN 199
Cooperative education experience with enrollment in ECEN 188 and ECEN 189.
Completion of 10 or more units in the combined bachelor of science and master of science program.

Note 5: Optional Elective or BS/MS Option
These slots are available for courses to be used for the 5 year BS/MS program or for free electives.