Marlan and Rosemary Bourns College of Engineering

Suggested Course Plan for a UC Riverside Major in

ELECTRICAL ENGINEERING

Catalog Year: 2022

Fall Quarter	*Units*	*Winter Quarter*	*Units*	*Spring Quarter*	*Units*
FIRST YEAR					
CS 010A	4	CS 010B	4	CS 061	4
C++ Programming I		*Introduction to CS for Engineers*		*Machine Org. & Assembly Lang. Prog.*	
EE 010	2	ENGL 001B	4	MATH 045/EE 020A	4
Intro to Electrical Engineering		*Intermediate Composition*		*Intro Ordinary Differential Equations*	
ENGL 001A	4	MATH 009B	4	MATH 009C	4
Beginning Composition		*First Year Calculus*		*First Year Calculus*	
MATH 009A	4	PHYS 040A	5	PHYS 040B	5
First Year Calculus		*Physics (Mechanics)*		*Physics (Heat/Waves/Sound)*	
SECOND YEAR					
EE 030A & EE 030LA	4	EE 030B	4	EE 100A	4
Fund Electric Circuits I & Lab		*Fund Electric Circuits II*		*Electronic Circuits*	
EE 020B	4	EE/CS 120A	5	CS/EE 120B	4
Linear Methodsfor Engr. Analysis		*Logic Design*		*Embedded Systems*	
PHYS 040C	5	MATH 010A	4	MATH 010B	4
Physics (Electricity/Magnetism)		*Multivariable Calculus*		*Multivariable Calculus*	
Breadth _____	4	Breadth _____	4	Breadth _____	4
Humanities/Social Sciences		*Humanities/Social Sciences*		*Humanities/Social Sciences*	
THIRD YEAR					
EE 110A	4	EE 016	4	EE 132	4
Signals & Systems		*Data Analysis for Engr. Applications*		*Automatic Control*	
EE 114	4	EE 110B	4	Tech Elective**	4
Prob., Random Variables & Processes		*Signals & Systems*		_____	
EE 116	4	Tech Elective**	4	Breadth _____	4
Engineering Electromagnetics		_____		*Humanities/Social Sciences*	
EE 133	4	Breadth _____	4	Breadth _____	4
Solid-State Electronics		*BIOL 002, 003 or 005A/05LA*		*Humanities/Social Sciences*	
FOURTH YEAR					
EE 175A	4	EE 175B	4	ENGR 181W	4
Senior Design Project		*Senior Design Project*		*Technical Communications*	
EE 142	4	Tech Elective**	4	Tech Elective**	4
Intro Machine Learn & Data Mining		_____		_____	
Tech Elective**	4	Tech Elective**	4	Breadth _____	4
_____		_____		*Humanities/Social Sciences*	

Minimum Units to Graduate: 180

To earn a B.S., you must complete all College and University requirements. For a complete list: catalog.ucr.edu.

ENGLISH COMPOSITION*

A "C" or better is required in three quarters of English Composition courses to satisfy the graduation requirement. ENGR 181W fulfills the third quarter of English Composition.

BREADTH REQUIREMENTS

For an approved list of Breadth courses: https://student.engr.ucr.edu/policies/breadth-requirements

Humanities: (3 courses)

A. World History: _____

B. Fine Arts, Lit., Phil. or Rlst: _____

C. Human Persp. on Science: _____

Social Sciences: (3 courses)

A. Econ. or Posc.: _____

B. Anth., Psyc, or Soc.: _____

C. General Social Science: _____

Biological Science

BIOL 002, 003, or 005A/05LA _____

Ethnicity: (1 course)

1. _____

Upper Division: (2 courses)

1. _____

2. _____

TECHNICAL ELECTIVES**

Please note that Technical Electives or required course in the focus area may be offered throughout the Academic Year. Consult with your Academic Advisor about potential offerings. See approved technical electives on back.

Course Plan is subject to change.

Electrical Engineering Technical Electives and Focus Areas

To ensure depth, the choice of technical electives must include at least one coherent sequence of at least four (4) courses (two required courses plus two additional) in one focus area of electrical engineering, and two (2) other technical elective courses, as defined below.

(1) Communications, Signal Processing and Networking (CSPN)

*EE 115 - Required**	*Intro to Communications (4)*
*EE 141 - Required**	*Digital Signal Processing (4)*
EE 100B	Electronic Circuits II (4)
EE 117	Electromagnetics II (4)
EE 118	Radio Frequency Circuit Design (4)
EE 146	Computer Vision (4)
EE 150	Digital Communications (4)
EE 152	Image Processing (4)
ENGR 160	Intro to Engineering Optimization Techniques (4)

(2) Control and Robotics (CR)

*EE 105 - Required**	*Modeling & Simulation of Dynamic Sys (4)*
*EE 144 - Required**	*Introduction to Robotics (4)*
EE 106	Programming Practical Robots (4)
EE 141	Digital Signal Procesing (4)
EE/ME 145	Robotic Planning & Kinematics (4)
EE 146	Computer Vision (4)
EE 151	Introduction to Digital Control (4)
EE 152	Image Processing (4)
ENGR 160	Intro to Engineering Optimization Techniques (4)

(3) Embedded Systems and VLSI

*EE 128 - Required**	*Sensing and Actuation for Embed. Sys. (4)*
*EE/CS 168 - Required**	*Introduction to VLSI Design (4)*
EE 100B	Electronic Circuits II (4)
EE 117	Electromagnetics II (4)
EE 118	Radio Frequency Circuit Design (4)
EE 135	Analog Integrated Circuit Layout and Design (4)
EE 147	GPU Computing and Programming (4)
EE 165	Design for Reliability of Integrated Circuits and Sys. (4)
CS 161	Design and Architecture of Computer Systems (4)
CS 162	Computer Architecture (4)

(4) Intelligent Systems (IS)

*EE 144 - Required**	*Introduction to Robotics (4)*
*EE 146 - Required**	*Computer Vision (4)*
EE 105	Modeling & Simulation of Dynamic Sys (4)
EE 106	Programming Practical Robots (4)
EE 115	Intro to Communications (4)
EE 128	Sensing and Actuation for Embed. Sys. (4)
EE 141	Digital Signal Procesing (4)
EE/ME 145	Robotic Planning & Kinematics (4)
EE 147	GPU Computing and Programming (4)
EE 150	Digital Communications (4)
EE 151	Introduction to Digital Control (4)
EE 152	Image Processing (4)
ENGR 160	Intro to Engineering Optimization Techniques (4)

(5) Nanotechnology, Advanced Materials, and Devices (NMD)

*EE 136 - Required**	*Semiconductor Device Processing (4)*
*EE 137 - Required**	*Intro to Semiconductor Optoelectronic Devices (4)*
EE 100B	Electronic Circuits II (4)
EE 117	Electromagnetics II (4)
EE 118	Radio Frequency Circuit Design (4)
EE 135	Analog Integrated Circuit Layout and Design (4)
EE 138	Electronic Properties of Materials (4)
EE 139	Magnetic Materials (4)
EE 162	Intro to Nanoelectronics (4)
EE/CS 168	Introduction to VLSI Design (4)

(6) Power Systems and Smart Grid (PSSM)

*EE 123 - Required**	*Power Electronics (4)*
*EE 155 - Lead Course**	*Power System Analysis (4)*
EE 100B	Electronic Circuits II (4)
EE 117	Electromagnetics II (4)
EE 128	Sensing and Actuation for Embed. Sys. (4)
EE 153	Electric Drives (4)
ENGR 160	Intro to Engineering Optimization Techniques (4)

*Required Course for the Focus Area