

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

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: <http://student.engr.ucr.edu/policies/requirements/breadth.html>.

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.

Minimum Units to Graduate: 180

Maximum Units to Graduate: 216

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)

<u>EE 115 - Required*</u>	<u>Intro to Communications (4)</u>
<u>EE 141 - Required*</u>	<u>Digital Signal Processing (4)</u>
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)

<u>EE 105 - Required*</u>	<u>Modeling & Simulation of Dynamic Sys (4)</u>
<u>EE 144 - Required*</u>	<u>Introduction to Robotics (4)</u>
EE 106	Programming Practical Robots (4)
EE 141	Digital Signal Processing (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

<u>EE 128 - Required*</u>	<u>Sensing and Actuation for Embed. Sys. (4)</u>
<u>EE/CS 168 - Required*</u>	<u>Introduction to VLSI Design (4)</u>
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)

<u>EE 144 - Required*</u>	<u>Introduction to Robotics (4)</u>
<u>EE 146 - Required*</u>	<u>Computer Vision (4)</u>
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 Processing (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)

<u>EE 136 - Required*</u>	<u>Semiconductor Device Processing (4)</u>
<u>EE 137 - Required*</u>	<u>Intro to Semiconductor Optoelectronic Devices (4)</u>
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)

<u>EE 123 - Required*</u>	<u>Power Electronics (4)</u>
<u>EE 155 - Lead Course*</u>	<u>Power System Analysis (4)</u>
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