

ELECTRICAL ENGINEERING

Fall Quarter	Units	Winter Quarter	Units	Spring Quarter	Units
FIRST YEAR					
CS 010 <i>C++ Programming I</i>	4	CS 013 <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>	1	ENGL 001B <i>Intermediate Composition</i>	4	EE 020 <i>Linear Methods for Engr. Analysis</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 001A & EE 01LA <i>Engineering Circuit Analysis I & Lab</i>	4	EE 001B <i>Engineering Circuit Analysis II</i>	4	CS/EE 120B <i>Embedded Systems</i>	5
MATH 046 <i>Differential Equations</i>	4	EE/CS 120A <i>Logic Design</i>	5	EE 116 <i>Engineering Electromagnetics</i>	4
PHYS 040C <i>Physics (Electricity/Magnetism)</i>	5	MATH 010A <i>Multivariable Calculus</i>	4	MATH 010B <i>Multivariable Calculus</i>	4
CHEM 001A & CHEM 01LA <i>General Chemistry and Lab</i>	5	Breadth _____ <i>Humanities/Social Sciences</i>	4	Breadth _____ <i>Humanities/Social Sciences</i>	4
THIRD YEAR					
EE 100A <i>Electronic Circuits</i>	4	EE 100B <i>Electronic Circuits</i>	4	EE 114 <i>Prob., Random Variables & Processes</i>	4
EE 110A <i>Signals & Systems</i>	4	EE 105 <i>Model. & Simulation of Dynamic Sys.</i>	4	EE 132 <i>Automatic Control</i>	4
Breadth _____ <i>Humanities/Social Sciences</i>	4	EE 110B <i>Signals & Systems</i>	4	Breadth _____ <i>Humanities/Social Sciences</i>	4
Technical Elective** <i>EE 128 Recommended</i>	4	Biol. Sci. Major Requirement <i>BIOL 002, 003 or 005A/05LA</i>	4	Technical Elective** _____	4
FOURTH YEAR					
EE 115 <i>Intro to Communications</i>	4	EE 175B <i>Senior Design Project</i>	4	ENGR 181W* <i>Technical Communications</i>	4
EE 141 <i>Digital Signal Processing</i>	4	Technical Elective** _____	4	Breadth _____ <i>Humanities/Social Sciences</i>	4
EE 175A <i>Senior Design Project</i>	4	Technical Elective** _____	4	Technical 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: www.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: _____

Ethnicity: (1 course)

- 1. _____

Upper Division: (2 courses)

- 1. _____
- 2. _____

TECHNICAL ELECTIVES **

Please note that Technical Electives 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.

*ENGR 180W is replaced with ENGR 181W

Electrical Engineering Technical Electives and Focus Areas

You must complete 5 courses (at least 20 units) of Technical Elective coursework chosen from the list below. It is recommended that at least 3 courses are chosen from one Focus Area. Courses marked with * are required course for a focus area. Units are listed in ().

Intelligent Systems (IS)

*EE 146	Computer Vision (4)
EE 140	Computer Visualization (4)
EE 144	Introduction to Robotics (4)
EE 152	Image Processing (4)
EE/CS 128	Data Acquis., Instrum., & Process Ctrl (4)
CS 122A	Intermediate Embedded and Real-time Systems (5)
CS 130	Computer Graphics (4)
ENGR 160	Intro to Engineering Optimization Techniques (4)

Nanotechnology, Advanced Materials, and Devices (NMDC)

*EE 133	Solid-State Electronics (4)
EE 117	Electromagnetics II (4)
EE 134	Digital Integrated Circuit Layout and Design (4)
EE 135	Analog Integrated Circuit Layout and Design (4)
EE 136	Semiconductor Device Processing (4)
EE 137	Intro to Semiconductor Optoelectronic Devices (4)
EE 138	Electronic Properties of Materials (4)
EE 139	Magnetic Materials (4)
EE 160	Fiber Optic Communication Systems (4)
EE 123	Power Electronics (4)
EE 162	Intro to Nanoelectronics (4)
EE 165	Design for Reliability of Integrated Circuits and Sys. (4)
EE/CS 168	Introduction to VLSI Design (5)
ENGR 160	Intro to Engineering Optimization Techniques (4)

Communications, Signal Processing and Networking (CSPN)

*EE 150	Digital Communications (4)
EE 117	Electromagnetics II (4)
EE 128	Data Acquis., Instrum., & Process Ctrl (4)
EE 152	Image Processing (4)
EE 160	Fiber Optic Communication Systems (4)
EE/CS 168	Introduction to VLSI Design (5)
CS 122A	Intermediate Embedded and Real-time Systems (5)
ENGR 160	Intro to Engineering Optimization Techniques (4)

Control and Robotics (CR)

*EE 151	Introduction to Digital Control (4)
EE 123	Power Electronics (4)
EE 128	Data Acquis., Instrum., & Process Ctrl (4)
EE 144	Introduction to Robotics (4)
ME/EE 145	Robotic Planning & Kinematics (4)
EE 146	Computer Vision (4)
EE 152	Image Processing (4)
EE 153	Electric Drives (4)
CS 122A	Intermediate Embedded and Real-time Systems (5)
ENGR 160	Intro to Engineering Optimization Techniques (4)

VLSI Design and Systems (VLSI)

*EE/CS 168	Introduction to VLSI Design (5)
EE 123	Power Electronics (4)
EE 128	Data Acquis., Instrum., & Process Ctrl (4)
EE 133	Solid-State Electronics (4)
EE 134	Digital Integrated Circuit Layout and Design (4)
EE 135	Analog Integrated Circuit Layout and Design (4)
EE 136	Semiconductor Device Processing (4)
EE 137	Intro to Semiconductor Optoelectronic Devices (4)
EE 165	Design for Reliability of Integrated Circuits and Sys. (4)
CS 161	Design and Architecture of Computer Systems (4)
CS 122A	Intermediate Embedded and Real-time Systems (5)
ENGR 160	Intro to Engineering Optimization Techniques (4)

Power Engineering (PE)

*EE 155	Power System Analysis (4)
EE 117	Electromagnetics II (4)
EE 123	Power Electronics (4)
EE 128	Data Acquis., Instrum., & Process Ctrl (4)
EE 153	Electric Drives (4)
ENGR 160	Intro to Engineering Optimization Techniques (4)

*Required course for the Focus Area