Marlan and Rosemary Bourns College of Engineering

Suggested Course Plan for a UC Riverside Major in

COMPUTER ENGINEERING

Catalog Year: 2024

Fall Quarter	Units	Winter Quarter	Units	Spring Quarter	Units
FIRST YEAR					
CS 010A *C++ Programming I*	4	CS 010B *C++ Programming II*	4	CS 010C *Intro to Data Struc. & Algorithms*	4
ENGL 001A *Beginning Composition*	4	ENGL 001B *Intermediate Composition*	4	MATH 009C *First Year Calculus*	4
ENGR 001G *Professional Dev. & Mentoring*	1	MATH 009B *First Year Calculus*	4	MATH/CS 011 *Intro to Discrete Structures*	4
MATH 009A *First Year Calculus*	4	PHYS 040A *Physics (Mechanics)*	5	PHYS 040B *Physics (Heat/Waves/Sound)*	5
SECOND YEAR					
CS 061 *Machine Org. & Assembly Lang. Prog.*	4	CS 111 *Discrete Structures*	4	CS 100 *Software Construction*	4
EE 020A/MATH 045 *Intro Ordinary Differential Equations*	4	EE 030A & EE 030LA *Fund Electric Circuits I & Lab*	4	CS/EE 120B *Embedded Systems*	4
EE 020B *Linear Methods for Engr. Analysis*	4	EE/CS 120A *Logic Design*	5	EE 030B *Engr. Circuit Analysis II & Lab*	4
PHYS 040C *Physics (Electricity/Magnetism)*	5	CHEM 001A and 01LA or ME 010 *Gen. Chemistry or Statics*	4	MATH 010A *Multivariable Calculus*	4
THIRD YEAR					
CS 141 *Interm. Data Structures & Algorithms*	4	EE 111 *Digital & Analog Signals & Systems*	4	CS 153 *Design of Operating Systems*	4
CS/EE 168 *VLSI Design*	4	ENGR 101G *Professional Dev. & Mentoring*	1	CS 161 & CS 161L *Design & Arch. of Comp. Sys.and Lab*	6
EE 100A *Electronic Circuits*	4	ENGR 180W* *Technical Communications*	4	Technical Elective** _____	4
Breadth _____ *Humanities/Social Sciences*	4	Breadth _____ *Biol Sci(Biol 002 or 003 or 005A/LA)*	4	Breadth _____ *Humanities/Social Sciences*	4
FOURTH YEAR					
EE 114 or STAT 155 *Prob., RV & Proc. or Stat*	4	Technical Elective** _____	4	Technical Elective** _____	4
EE 128 *(or CS 122A, if offered)*	4	Technical Elective** _____	4	Technical Elective** _____	4
Technical Elective** _____	4	Breadth _____ *Humanities/Social Sciences*	4	Breadth _____ *Humanities/Social Sciences*	4
Breadth _____ *Humanities/Social Sciences*	4			Breadth _____ *Humanities/Social Sciences*	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 180W 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 _____

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.

Minimum Units to Graduate:	180
Maximum Units to Graduate:	216

Computer Engineering Technical Electives

You must complete six courses (at least 24 units) as technical electives from the following set of Computer Science, Engineering, or Electrical Engineering upper-division courses. The technical electives selected must include either CS 178A and CS 178B, or CS 179 (E-Z) or EE 175A and EE 175B. The technical electives must be distinct from those used to satisfy major requirements. Units are listed in ().

CS 110	Principles of Web Development (4)
CS 122A	Interm. Embedded & Real-Time Systems (5)
CS 122B	Adv. Embedded & Real-Time Systems (5)
CS 130	Computer Graphics (4)
CS 131	Edge Computing (4)
CS 133	Computational Geometry (4)
CS 134	Video Game Creation & Design (4)
CS 135	Virtual Reality (4)
CS 142	Algorithm Engineering (4)
CS 145	Combinatorial Optimization Algorithms (4)
CS 147	GPU Programming (4)
CS 150	Theory of Automata & Formal Languages (4)
CS 152	Compiler Design (4)
CS 160	Concurrent Prog. & Parallel Systems (4)
CS 162	Computer Architecture (4)
CS 164	Computer Networks (4)
CS 165	Computer Security (4)
CS 166	Database Management Systems (4)
CS 169	Mobile Wireless Networks (4)
CS 170	Intro to Artificial Intelligence (4)
CS 171	Intro to Machine Learning & Data Mining (4)
CS 172	Intro to Information Retrieval (4)
CS 175	Entrepreneurship in Computing (4)
CS 177	Modeling & Simulation (4)
CS 178A	Project Sequence in CS (4)
CS 178B	Project Sequence in CS (4)
CS 179 E-Z	Proj. in Computer Science (4 units max)
CS 180	Intro to Software Engineering (4)
CS 181	Principles of Programming Languages (4)
CS 182	Software Testing & Verification (4)
CS 183	UNIX System Administration (4)
CS 193	Design Project (4 units maximum)

EE 100B	Electronic Circuits (4)
EE 106	Programming Practical Robots (4)
EE 105	Modeling & Simulation of Dynamic Systems (4)
EE 115	Intro to Communication Systems (4)
EE 123	Power Electronics (4)
EE 128	Data Acquisition, Instrum., & Process Control (4)
EE 132	Automatic Control (4)
EE 133	Solid-State Electronics (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 141	Digital Signal Processing (4)
EE 144	Intro to Robotics (4)
EE 146	Computer Vision (4)
EE 147	Graphics Processing Unit Computing & Prog. (4)
EE 150	Digital Communication (4)
EE 151	Intro to Digial Control (4)
EE 152	Image Processing (4)
EE 162	Intro to Nanoelectronics (4)
EE 165	Design for Reliability of Integ. Circuits & Systems (4)
EE 175A	Senior Design Project (4)
EE 175B	Senior Design Project (4)
ENGR 160	Intro to Engineering Optimization Techniques (4)