Marlan and Rosemary Bourns College of Engineering

Suggested Course Plan for a UC Riverside Major in

Robotics

Catalog Year: 2022

Fall Quarter	Units	Winter Quarter	Units	Spring Quarter	Units
FIRST YEAR					
ENGL 001A *Beginning Composition*	4	ENGL 001B *Intermediate Composition*	4	Breadth _____ *Humanities/Social Sciences*	4
MATH 009A *First Year Calculus*	4	MATH 009B *First Year Calculus*	4	MATH 009C *First Year Calculus*	4
CS 010A *Intro to Computer Science I*	4	CS 010B *Intro to Computer Science II*	4	CS 010C *Intro to Data Structures & Algorithms*	4
ME 009 *Engineering Graphics & Design*	4	PHYS 040A *Physics (Mechanics)*	5	PHYS 040B *Physics (Heat/Waves/Sound)*	5
SECOND YEAR					
CS 100 *Software Construction*	4	EE 106 *Programming Practical Robotics*	4	CS 061 *Machine Org & Assembly Lang Prog*	4
MATH 010A *Multivariable Calculus*	4	MATH 046 *Differential Equations*	4	MATH 011 *Intro to Discrete Structures*	4
PHYS 040C *Physics (Electricity/Magnetism)*	5	EE 005 *Circuits and Electronics*	4	MATH 031 *Applied Linear Algebra*	5
Breadth _____ *Humanities/Social Sciences*	4	Breadth _____ *Biological Science*	4	ME 010 *Statics*	4
THIRD YEAR					
EE/ME 144 *Foundations of Robotics*	4	CS/EE 120A *Logic Design*	4	CS/EE 120B *Embedded Systems*	4
EE 111 *Digital &Analog Sig & Systems*	4	EE 114 *Prob, Rand Variables & Rand Process*	4	EE 132 *Automatic Control*	4
ME 120 *Linear Systems and Control*	4	ME 103 *Dynamics*	4	Technical Elective	4
Breadth _____ *Humanities/Social Sciences*	4	Breadth _____ *Humanities/Social Sciences*	4	ENGR 180W *Technical Communication*	4
FOURTH YEAR					
EE 142 / CS 171 *Intro to Mach Learning & Data Mining*	4	EE/ME 145 *Robotic Planning and Kinematics*	4	Technical Elective	4
SENIOR DESIGN 1* *ENCS, ELEN or MCEN*	4	SENIOR DESIGN 2* *ENCS, ELEN or MCEN*	4	Technical Elective	4
Breadth _____ *Humanities/Social Sciences*	4	Technical Elective	4	Breadth _____ *Humanities/Social Sciences*	4

* Students have the option to complete one of the following sequences to satisfy senior design:
ENCS (CS 178A & 178B), ELEN (EE 175A &175B) or MCEN (ME 175B & 175C)

Total Units: 184
Maximum units: 223

To earn a B.S., you must complete all College and University requirements. For a full list of requirements, refer to www.catalog.ucr.edu.

ENGLISH COMPOSITION*

A "C" or better is required in all 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, go to 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.

Robotics Technical Electives

You must complete 4 courses (at least 16 units) of Technical Elective coursework.

Technical Electives

CS 111:	Discrete Structures (4)
CS 122A:	Intermediate Embedded and Real-Time Systems (5)
CS 122B:	Advanced Embedded and Real-Time Systems (5)
CS 135:	Virtual Reality (4)
CS 141:	Intermediate Data Structures and Algorithms (4)
CS 145:	Combinatorial Optimization Algorithms (4)
CS 150:	Automata and Formal Languages (4)
CS 160:	Concurrent Programming and Parallel Systems (4)
CS 170:	Introduction to Artificial Intelligence (4)
CS 173:	Introduction to Natural Language Processing (4)
ME 110:	Mechanics of Materials (4)
ME 122:	Vibrations (4)
ME 130:	Kinematic and Dynamic Analysis of Mechanisms (4)
ME 131:	Design of Mechanisms (4)
ME 133:	Introduction to Mechatronics (4)
ME 153:	Finite Element Methods (4)
EE 100A:	Electronic Circuits (4)
EE 115:	Introduction to Communication Systems (
EE 128:	Sensing and Actuation for Embedded Systems (4)
EE 141:	Digital Signal Processing (4)
EE 146:	Computer Vision (4)
EE 147:	Graphics Processing Unit Computing and Programming (4)
EE 150:	Digital Communications (4)
EE 151:	Introduction to Digital Control (4)
EE 152:	Image Processing (4)
ENGR 160:	Introduction to Engineering Optimization Techniques (4)