Marlan and Rosemary Bourns College of Engineering

Suggested Course Plan for a UC Riverside Major in

COMPUTER SCIENCE

Catalog Year: 2021

Fall Quarter	Units	Winter Quarter	Units	Spring Quarter	Units
FIRST YEAR					
CS 010A	4	CS 010B	4	CS 010C	4
C++ Programming I		*C++ Programming II*		*Intro to Data Structures & Algorithms*	
ENGL 001A	4	ENGL 001B	4	MATH 009C	4
Beginning Composition		*Intermediate Composition*		*First Year Calculus*	
ENGR 001I	1	MATH 009B	4	Breadth _____	4
Professional Dev. & Mentoring		*First Year Calculus*		*Humanities/Social Sciences*	
MATH 009A	4	MATH/CS 011	4		
First Year Calculus		*Intro to Discrete Structures*			
SECOND YEAR					
CS 061	4	EE/CS 120A	5	CS/EE 120B	4
Machine Org. & Assembly Lang. Prog.		*Logic Design*		*Embedded Systems*	
CS 100	4	CS 111	4	PHYS 040C	5
Software Construction		*Discrete Structures*		*Physics (Electricity/Magnetism)*	
PHYS 040A	5	PHYS 040B	5	Breadth _____	4
Physics (Mechanics)		*Physics (Heat/Waves/Sound)*		*Humanities/Social Sciences*	
Breadth _____	4	Breadth _____	4		
Humanities/Social Sciences		*Humanities/Social Sciences*			
THIRD YEAR					
CS 141	4	CS 150	4	Engineering Elective	4
Interm. Data Structures & Algorithms		*Theory of Automata & Formal Language*		*EE01A/01LA or EE 005, or MATH 046, or ME 009, or ME 010*	
CS 161	4	MATH 031 or EE 020	5	ENGR 180W*	4
Design & Architec. of Comp. Sys. & Lab		*Applied Linear Algebra*		*Technical Communications*	
MATH 010A	4	Technical Elective**	4	CS 153	4
Multivariable Calculus		_____		*Design of Operating Systems*	
Breadth _____	4	ENGR 101I	1		
Humanities/Social Sciences		*Professional Dev. & Mentoring*			
FOURTH YEAR					
CS 179(E-Z) or CS 178A*	4	CS 178B* or Technical Elective**	4	Technical Elective**	4
Proj in Comp Sc or Proj Seq in CSE		*Proj Seq in CSE or Technical Elect*		_____	
Technical Elective**	4	Technical Elective**	4	Technical Elective**	4
_____		_____		_____	
STAT 155	4	CS 152	4	Technical Elective**	4
Probability & Statistics for Engr		*Compiler Design*		_____	
Breadth _____	4	Breadth _____	4		
BIOL 002, or 003, or 005A/LA		*Humanities/Social Sciences*			

Total Units: 175

Maximum Units: 220

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: 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 _____

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. Proposed offerings may be found at: http://www.cs.ucr.edu/education/undergraduate/courses/. See approved technical electives on back.

Course Plan is subject to change.

Computer Science Technical Electives

You must complete seven (7) courses (at least 28 units) of Technical Electives chosen from the list below. At least four (4) Technical Electives must be from Computer Science courses.

Course	Course Title (Units)
CS 105	Data Analysis Methods (4)
CS 110	Web Development (4)*
CS 122A	Intermed. Embedded & Real-Time Systs (5)
CS 122B	Adv. Embedded & Real-Time Systems (5)
CS 130	Computer Graphics (4)
CS 133	Computational Geometry (4)
CS 134	Video Game Creation & Design (4)
CS 135	Virtual Reality (4)
CS 142	Algorithm Engineering (4)*
CS 144	Algorithms for BioInformatics (4)*
CS 145	Combinatorial Optimization Algorithms (4)
CS 147	GPU Programming (4)
CS 160	Concurrent Programming & 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 167	Intro to BIG-DATA Management (4)*
CS/EE 168	Introduction to Very Large Scale Integration (VLSI) Design (4)
CS 169	Mobile Wireless Networks (4)
CS 170	Introduction to Artificial Intelligence (4)
CS 171	Introduction to Machine Learning and Data Mining (4)
CS 172	Introduction to Information Retrieval (4)
CS 173	Intro to Natrual Language Processing (NPL) (4)
CS 175	Entrepreneurship in Computing (4)
CS 177	Modeling & Simulation (4)
CS 179 E-Z	Project in Computer Science (4 units maximum)
CS 180	Introduction to Software Engineering (4)
CS 181	Principles of Programming Languages (4)
CS 182	Software Testing and Verification (4)
CS 183	UNIX System Administration (4)
CS 193	Design Project (4 units maximum)
MATH 120	Optimization (4)
MATH 126	Combinatorics (4)
MATH 135A	Numerical Analysis (4)
MATH 135B	Numerical Analysis (4)
PHIL 124	Formal Logic (4)

*Technical Electives not in the Catalog for 2020-2021