

## Bachelor of Science in Computer Engineering and Computer Science

Students attaining the Bachelor of Science degree in Computer Engineering and Computer Science would possess the scientific and engineering skills and knowledge that would enable them to design and implement computer systems that effectively and efficiently integrate developing hardware and software technologies. This degree is administered jointly by the Departments of Computer Science and Electrical Engineering. In order to earn the Bachelor of Science degree in Computer Engineering and Computer Science, the student must: (1) earn 128 class units as described below; (2) achieve a minimum grade point average of 2.0 on all course work undertaken at USC; (3) attain a minimum grade point average of 2.0 on all course work completed in Electrical Engineering and Computer Science at USC. In addition, CECS majors must complete a minimum of 30 units of course work in Humanities and Social Sciences.

The following sample four-year program is only an example of how the required courses might be scheduled. A student does not have to take the required course work in the order specified in the sample program although it would be appropriate to try and follow it as closely as possible.

<b>First Year, First Semester</b>		<b>Units</b>
EE 106L	Introduction to Computer Engineering/Computer Science	3
MATH 125	Calculus I	4
WRIT 140*	Writing and Critical Reasoning	4
General Education Category VI*		4
		15
<b>First Year, Second Semester</b>		<b>Units</b>
CSCI 101L	Fundamentals of Computer Programming	3
EE 101	Introduction to Digital Logic	3
MATH 126	Calculus II	4
General Education Category V		4
Free elective		2
		16
<b>Second Year, First Semester</b>		<b>Units</b>
CSCI 105	Object-Oriented Programming	2
EE 201L	Introduction to Digital Circuits	2

MATH 226	Calculus III	4
PHYS 151L**	Fundamentals of Physics I: Mechanics and Thermodynamics	4
General Education Category II		4

16

**Second Year, Second Semester**

**Units**

CSCI 102L	Data Structures	3
EE 357	Basic Organization of Computer Systems	3
PHYS 152L	Fundamentals of Physics II: Electricity and Magnetism	4
MATH 225	Linear Algebra and Differential Equations	4
General Education Category I		4

18

**Third Year, First Semester**

**Units**

CSCI 201L	Principles of Software Development	4
CSCI 271	Discrete Methods in Computer Science	3
EE 328Lx	Circuits and Electronics for Computer Engineers	4
EE 457x	Computer Systems Organization	3
Free elective		2-3

16-17

**Third Year, Second Semester**

**Units**

CSCI 303	Design and Analysis of Algorithms	3
EE 364	Introduction to Probability and Statistics for Electrical Engineering, or	3
MATH 407	Probability Theory	4
EE 454L	Introduction to Systems Using Microprocessors	4
General Education Category IV+		4
Technical elective***		3

17-18

**Fourth Year, First Semester**

**Units**

CSCI 377	Introduction to Software Engineering	3
CSCI 402	Operating Systems	3
WRIT 340	Advanced Writing	3
Science elective*****		4
Technical elective***		3

16

**Fourth Year, Second Semester**

**Units**

CSCI 477	Design and Construction of Large Software Systems, or	
EE 459L	Embedded Systems Design Laboratory	3

ISE 460	Engineering Economy	3
400-level math elective++		4
Technical elective***		3
		13

Minimum total units for degree 128

\* Taken concurrently.

\*\* Satisfies general education requirement for category III.

\*\*\* Three courses are required. Applicable courses include: CSCI 351, CSCI 377, CSCI 410x, CSCI 445, CSCI 459, CSCI 460, CSCI 477L, CSCI 480, CSCI 485, CSCI 490x, CSCI 499; EE 321, EE 450, EE 459L, EE 465, EE 469, EE 477L, EE 478L, EE 479, EE 490x, EE 499; MATH 458. Other courses may be applicable; please see an advisor for approval.

\*\*\*\* Any course in physics, biology or chemistry beyond the basic science requirement or in another scientific discipline. See department for approval.

+The university allows Engineering majors to replace the General Education Category IV with a second course in Categories I, II, or VI. Choosing this option is the most efficient way to satisfy the 30-unit requirement in Humanities and Social Sciences.

++Any 400-level mathematics course can be taken to satisfy this requirement except MATH 450.