

COMPUTER SYSTEMS ENGINEERING

Computer Systems Engineering is an interdisciplinary program between the Electrical Engineering Department and the Computer Science Department. It is a School of Engineering major that leads to a Bachelor of Science in Engineering degree. The program is targeted for undergraduates with interest in implementation and application of computers and computer-based systems. Through course and laboratory experiences, students will learn the essential principles required to define, design, and build both general purpose and application-specific computer systems. Coursework emphasizes fundamental elements of electrical engineering and computer science as well as underlying circuit and logic technologies. A senior project caps the program and provides a special hands-on experience.

REQUIREMENTS

MATHEMATICS: (23 UNITS)

Math. 41, 42, 51.	Calculus	15
Math 52 <i>or</i> 53.	Calculus	5
Math. 103 or 113.*	Linear Algebra & Matrix Theory	3

SCIENCE: (13 UNITS)

Phys. 41.	Mechanics	3
Phys. 43.	Electricity	3
Phys. 45.	Magnetism	3
Phys. 47	Light and Heat	4

ENGINEERING FUNDAMENTALS: (10 UNITS)

Engr. 40.	Introductory Electronics	5
Comp. Sci. 106X	Programming Methodology and Abstractions	5
or		
CS 106A and CS 106B		

TECHNOLOGY IN SOCIETY: (3-5 UNITS)

1 course (See list of approved courses in front of Handbook)**

DEPTH: (55 UNITS)

Comp. Sci. 107.	Programming Paradigms	5
Comp. Sci. 108.	Object-Oriented Systems Design	4
Comp. Sci. 109.	Introduction to Computer Science	4
Comp. Sci. 143.	Compilers	4
or		
Comp. Sci. 240A.	Operating Systems	
Comp. Sci. 150.	Intro to Comp Theory for Non-CS Majors	4
Elect. Engr. 101.	Introduction to Circuits	4
Elect. Engr. 111, 112.	Electronics I, II	8
Elect. Engr. 121.	Digital Design Laboratory	3
Elect. Engr. 182.	Computer Organization and Design	4
Elect. Engr. 183.	Advanced Logic Laboratory	3
Elect. Engr. 271.	Introduction to VLSI Systems	3
Electives+		6
Senior Project	(3 units of Comp.Sci. 191, 191W, 194 or 195B)++	3

Total Units: 104-106

NOTE: CS191W, 194 or 201 will fulfill the “Writing in the Major” requirement.

*Completion of Math 52 AND 53 will satisfy the Math 103/113 requirement.

** CS 201 also fulfills this requirement.

+ 6 units from the following: Comp. Sci. 110, 121 or 221, 137, 143, 145, 147, 148 or 248, 154, 157, 161, 195A, 222, 223A, 223B, 224, 225, 227, 228, 229, 240A, 240B, 242, 243, 244A, 245A, 245B, 247A, 247B, 249, 258, 261; Elect. Eng. 212, 216, 218, 247, 264, 272A, 272B, 278 and 282.

++ Comp. Sci. 191 and 191W independent study projects require faculty sponsorship and must be approved—in advance—by the advisor, faculty sponsor, and the CSE program advisor (either Kunle Olukotun or Eric Roberts). A form bearing these signatures, along with a brief description of the project, should be filed with the departmental representative in Gates room 182 at least two quarters before graduation.

TYPICAL SCHEDULE

The Math, Science, and Basic Engineering components of the curriculum, as well as EE101, will typically be completed in the Freshman and Sophomore years. The remainder of the program can be completed in the Junior and Senior years:

<p style="text-align: center;"><i>Autumn</i></p> <p>CS 107 EE 111</p>	<p style="text-align: center;">Junior Year <i>Winter</i></p> <p>CS 108 CS 109 EE 112</p>	<p style="text-align: center;"><i>Spring</i></p> <p>CS150 EE 121</p>
<p style="text-align: center;"><i>Autumn</i></p> <p>Elective EE 182 EE 271</p>	<p style="text-align: center;">Senior Year <i>Winter</i></p> <p>Elective CS 240A or EE 183</p>	<p style="text-align: center;"><i>Spring</i></p> <p>Project CS 143</p>

