



COMPUTER ENGINEERING MAJOR SHEET

This guide is provided for student use only. It does not represent an official documentation of a student's progress towards completion of their degree program. The CPEN program requires a minimum of 128 credit hours to complete. Students must have a grade of C or better in CS1150, CS1450, ECE1411, ECE2411 and ECE2610, a minimum 2.0 GPA in all ECE & CS course work taken, and a minimum 2.0 GPA in cumulative course work. Students must also complete an Exit Interview with the ECE Department to graduate.

COMPUTER ENGINEERING CORE COURSES – All courses in this section must be completed.

<input checked="" type="checkbox"/> COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
CS 1150 Principles of Computer Science (<i>must pass with C</i>)	3	HS Algebra, knowledge of computer concepts
CS 1450 Data Structures & Algorithms (<i>must pass with C</i>)	3	CS1150
CS 2060 Programming with C	3	CS1150
CS 2080 Programming with UNIX	2	CS1450
CS 3060 Object Oriented Programming in C++	3	CS 2080 and CS2060 or ECE 1021
CS 3300 Software Engineering	3	CS2080 and 3020 or 3060
CS 4500 Operating Systems	3	CS2060, CS2080, CS 2160 or ECE 3430, CS 4200 or ECE 4480
CS 4720 Design & Analysis of Algorithms	3	CS1450, MATH 2150
ECE 1001 Introduction to Robotics	3	None
ECE 1411 Logic Circuits I (<i>must pass with C</i>)	2	None
ECE 2205 Circuit and Systems I	4	ECE 2610, Coreq. MATH 3400
ECE 2411 Logic Circuits II (<i>must pass with C</i>)	2	ECE1411
ECE 2610 Intro to Signals and Systems (<i>must pass with C</i>)	4	MATH 1360, ECE 1021 or CS 2060
ECE 3210 Electronics I	3	ECE2205
ECE 3420 Microprocessor Systems Lab	1	ECE1411, Coreq. ECE3430
ECE 3430 Intro to Microcomputer Systems	3	ECE1411 Coreq. ECE3420
ECE 3440 Microcomputer Systems Lab	1	ECE 2411 ECE3430
ECE 3610 Engineering Probability & Statistics	3	MATH2350
ECE 4242 Advanced Digital Design Methods	3	ECE 2411
ECE 4330 Embedded System Design	3	ECE3430, CS1450 or consent of instructor
ECE 4480 Computer Architecture & Design	3	ECE3430 or consent of instructor
OR C S 4200 Computer Architecture I	3	CS2160
ECE 4890 Senior Seminar	1	Must be taken the semester prior to ECE4899
ECE 4899 Design Project	3	ECE4890 & last semester of degree
TOTAL	62	

TECHNICAL ELECTIVES – 10 credit hours of technical electives must be completed. Technical Electives should be chosen from the following courses: CS 3010, CS 3020, CS 3160, CS 4100, CS 4220, CS 4420, CS 4600, CS 4700, CS 4800, CS 4820, ECE2050, ECE3020, ECE3110, ECE3120, ECE 3205, ECE3220, ECE3230, ECE3240, ECE4200, ECE4211, ECE4220, ECE4320, ECE4362, MATH3130. Other courses in CS, ECE, MAE, MATH and PES numbered 3000+ (except MATH3010 and 3020) may be accepted with a petition completed prior to taking the course.

<input checked="" type="checkbox"/> COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
TOTAL	10	

MATHEMATICS – All courses in this section must be completed.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	MATH 1350 Calculus I (or Math 1310 and Math 1320)	4	MATH1050
	MATH 1360 Calculus II	4	MATH1350
	MATH 2150 Discrete Mathematics	3	MATH1350
	MATH 2350 Calculus III	4	MATH1360
	MATH 3400 Intro. to Differential Equations	3	MATH2350
	TOTAL	18	

BASIC SCIENCE – PES 1110 and 1120 must be completed. 6 additional hours of Basic Science are also required and may be chosen from the following courses (credit hours for each class are listed after the course number): CHEM1030-5, CHEM1060-5, GEOL1010-4, GEOL1020-4, BIOL1200-4, BIOL1210-4, PES2130-3, PES2160-1, PES3000+ (any course).

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	PES 1110 General Physics I	4	Coreq. MATH 1350
	PES 1120 General Physics II	4	PES1110, Coreq. MATH1360
	6 hours of additional Science courses from list above	6	Check Bulletin for specific course prerequisites
	TOTAL	14	

WRITING SKILLS – All courses in this section must be completed. Please note that ENGL 1410 can replace ENGL 1310 if the student desires a more challenging writing course. Students may take both ENGL 1300 and ENGL 1305 to receive credit for ENGL 1310.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	ENGL 1310 Rhetoric & Writing I	3	Score of 19+ on ACT Engl or 450+ on SAT Verb
	ENGL 2090 Technical Writing and Presentation	3	ENGL1310
	Writing Competency Portfolio	N/A	Complete 1 year prior to expected graduation
	TOTAL	6	

HUMANITIES/SOCIAL SCIENCE ELECTIVES – Complete 15 hours of Humanities/Social Science Electives. You must complete at least 6 hours of Humanities and 6 hours of Social Science from the departments listed. At least 6 hours must be taken at the 2000+ level. Humanities electives can be chosen from the following departments: AH, ENGL (except ENGL99, 1310, 1350 & 1410), HIST, Languages (culture courses only), MUS (except choir or lessons) and PHIL. Social Science electives can be chosen from the following departments: ANTH, COMM, ECON, GES, GRNT, PSC, PSY, SOC and WEST. ID -1010 Freshman Seminar may also be taken.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	Humanities Courses	6	
	Social Science Courses	6	
	One additional course from Humanities or Social Science	3	
	TOTAL	15	

FREE ELECTIVES – Students need to complete 3 hours of Free Electives. The chosen course(s) can be selected from any discipline but may not include MATH1040, MATH1050, MATH1110, and MATH1120.

<input checked="" type="checkbox"/>	COURSE NUMBER & TITLE	HRS	PREREQUISITES/COREQUISITES
	TOTAL	3	

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COMPUTER ENGINEERING SAMPLE PROGRAM

The following document is intended for student use only. It represents the suggested order and semesters in which students should take courses to graduate within 4 years. Since each student starts at a different level of mathematical ability this listing should only be considered a guide. *Please refer to the Computer Engineering Major Sheet for elective options and course prerequisites and co-requisites.*

Courses marked with an * are usually available in the summer. All ECE courses numbered above 3000 are only offered during the indicated semester, except for ECE 4890/4899.

FRESHMAN YEAR

FALL SEMESTER (17 credit hours)	SPRING SEMESTER (17 credit hours)
*CS 1150 – Principles of Computer Science (3)	*CS 1450 – Data Structures and Algorithms (3)
ECE 1001 – Intro to Robotics (3)	CS 2060 – Programming with C (3)
*ENGL 1310 – Rhetoric and Writing I (3)	*MATH 1360 – Calculus II (4)
or ID 1010 – Freshman Seminar (3)	*PES 1120 – General Physics II (4)
*MATH 1350 – Calculus I (4)	*Social Science/Humanities Elective (3)
*PES 1110 – General Physics I (4)	or *ENGL 1310 – Rhetoric and Writing I (3)

SOPHOMORE YEAR

FALL SEMESTER (15 credit hours)	SPRING SEMESTER (15 credit hours)
CS 2080 – Programming with UNIX (2)	*ECE 2205 – Circuits and Systems I (4)
CS 3060 – Object Oriented Programming in C++ (3)	*ECE 2411 – Logic Circuits II (2)
*ECE 1411 – Logic Circuits I (2)	*MATH 2150 – Discrete Math (3)
ECE 2610 – Intro to Signals and Systems (4)	*MATH 3400 – Intro to Differential Equations (3)
*MATH 2350 – Calculus III (4)	*Social Science/Humanities Elective (3)

JUNIOR YEAR

FALL SEMESTER (16 credit hours)	SPRING SEMESTER (16-18 credit hours)
ECE 3210 – Electronics I (3)	CS 3300 – Software Engineering I (3)
ECE 3420 – Microprocessor Systems Laboratory (1)	ECE 3440 – Microcomputer Systems Laboratory (1)
ECE 3430 – Intro to Microcomputer Systems (3)	ECE 3610 – Engineering Probability & Statistics (3)
ECE 4242 – Advanced Digital Design Methodology (3)	ECE 4480 – Computer Architecture and Design (3)
*ENGL 2090 – Technical Writing and Presentation (3)	<u>or</u> CS 4200 – Computer Architecture I (3)
*Social Science/Humanities Elective (3)	*Basic Science Course with lab content (3,4, or 5)
	*Social Science/ Humanities Elective (3)

SENIOR YEAR

FALL SEMESTER (14-16 credit hours)	SPRING SEMESTER (16 credit hours)
CS 4500 – Operating Systems I (3)	ECE 4899 – Senior Design Project (3)
CS 4720 – Design and Analysis of Algorithms (3)	*Technical Electives (7)
ECE 4330 – Embedded Systems Design (3)	*Social Sciences/Humanities Elective (3)
ECE 4890 – Senior Seminar (1)	*Free Elective (3)
*Technical Elective (3)	
*Basic Science Course (1, 2, or 3)	