Stanford University ♦ School of Engineering

Computer Science

Computer Engineering Track

2023-2024 Program Sheet

Final version of program sheet is due to the department no later than one month prior to the last quarter of senior year.

Follow all requirements as stated for the year of the program sheet used.

Name: _____ SUID #: _____

Phone: _____ Email: _____

Today's Date: _____ Month/Yr B.S. expected: _____

Mathematics and Science Requirement

Dept	Course	Title	Transfer/AP Approval by SoE			Unit	Grade
			✓ if Transfer	SoE Initials	Date		
Mathematics (26 units minimum)							
MATH	19	Calculus (see note 1)					
MATH	20						
MATH	21						
CS	103	Mathematical Foundations of Computing					
CS	109	Introduction to Probability for Computer Scientists					
Plus two electives (see note 2)							
					Mathematics Unit Total (26 units minimum)		
Science (11 units minimum)							
PHYS	41	Mechanics (or PHYS 21 or 61)					
PHYS	43	Electricity and Magnetism (or PHYS 23 or PHYS 81/63)					
		Elective (see note 3)					
					Science Unit Total (11 units minimum)		
					(37 units min. Math/Sci combined)		
Technology in Society Requirement *(1 course req'd from Approved TiS list at ughb.stanford.edu the year taken; see note 6)*							
Engineering Fundamentals *(10 units minimum)*							
CS	106B	Programming Abstractions					
ENGR	40M or 76	An Intro to Making: What is EE? *-OR-* Information Science & Engr					
					Engineering Fundamentals Total (10 units minimum)		

NOTES

* **All courses listed on this form can be included under only one category. There is no double-counting.**

* **All courses listed on this form must be taken for a letter grade (unless taken Spring 2019-20, and Aut-Sum 2020-21)**

* This printed form must be signed by the departmental representative (SSO), with changes petitioned (see UGHB, Petitions page) and initialed/dated by SSO.

* Minimum Grade Point Average (GPA) for all courses in ENGR Fundamentals and CS Core, Depth, and Senior Project (combined) is 2.0.

* Students without prior programming experience should first take CS106A. The major otherwise requires at most 95 units, so even with CS106A, the BSCS major adheres to the university's 100-unit cap on all undergraduate majors.

* Transfer and AP credits in Math, Science, Fundamentals, & TIS must be approved by the SoE Dean's Office: https://ughb.stanford.edu/transfers-ap-exceptions in UGHB for approval process. Transfer credits in Computer Science Core, Depth and Senior Project must be approved by the Computer Science office.

* Courses must be taken for the number of units on the Program Sheet. CS103, 106B, 107, 109, 111, and 161 must be taken for 5 units.

(1) MATH 19/20/21 or equivalent (10 units AP BC, or transfer, with placement into MATH 51/CME 100) is acceptable. If 6-8 units AP or IB credit are used, must take M 21 (21 may not be skipped using Math Diagnostic Placement results). AP must be approved by SoE; see https://ughb.stanford.edu/transfers-ap-exceptions in UGH

(2) Math electives: Math 51, 52, 53, 104, 107, 108, 109, 110, 113; CS 157, 205L; PHIL 151; CME 100, 102, 104; ENGR 108.
Restrictions: CS 157+ Phil 151 may not be used in combination to satisfy the Math electives requirement. Students who have taken both Math 51 & 52 may not count CME 100 as an elective. Students who take both Math 51 & CME 100 receive only 8 units credit in the major due to overlap.

(3) Any course of 3 or more units from the SoE Science List (see Courses page at ughb.stanford.edu), PSYCH 30, or AP Chemistry may be used.

CS Computer Engineering Track Program Sheet (continued)

Computer Engineering Track Core, Depth, and Senior Project *(43 units minimum)*

Be advised: no course may be listed twice on the sheet; no double-counting.

Dept	Course	Title	Transfer/Deviation Approval by Dept			Unit	Grade
			✓ if Transfer	Dept Initials	Date		
Core (15 units minimum)							
CS	107 or 107E	Computer Organization and Systems					
CS	111	Operating Systems Principles					
CS	161	Design and Analysis of Algorithms					
Depth; Track and Electives (25 units and 7 courses minimum)							
EE	108	Digital System Design (Track Requirement A)					
EE	180	Digital Systems Architecture (Track Requirement A)					
EE		Track Requirement B (see note 4)					
EE		Track Requirement B (see note 4)					
		Track Requirement C (see note 5)					
		Track Requirement C (see note 5)					
		Track Requirement C (see note 5)					
Senior Project (1 course required)					*Total depth units (25 minimum)*		
CS		At least 3 units of 191, 191W, 194, 194H, 194W, 210B, or 294 *(see note 6)*					
					Computer Science Core, Depth and Senior Project Total (43 units minimum)		

Program Approvals

Departmental

Printed Name: _____ Date: _____

Signature: _____

School of Engineering (No action required-office use only)

Printed Name: _____ Date: _____

Signature: _____

NOTES (continued from page 1)

(4) Track Requirement B: Two courses selected from the following: EE 101A, 101B, 102A, 102B

(5) Track Requirement C: Satisfy the requirements of one of the following concentrations:
Digital Systems Concentration: EE 109, 271, CS112 or CS140E
Robotics and Mechatronics Concentration: CS 205L, 223A; ME 210 or CS 225A
Networking Concentration: CS112 or CS140E, 144, any one of CS 240, CS240LX, 241, 244, 244B, or EE 179

(6) The WiM req't may be met by taking CS 181W or 182W as TiS, or by Senior Project course (CS 191W, 194W, or 210B only).