

# Computer Engineering Planning Worksheet

Admitted to Engineering Fall 2026 Onwards

## Required Courses

\*subject to change

- 15 units of mathematics, 8 units of physics, 3 units of chemistry
- 20 units of lower division engineering and computer science courses and 40 units of required upper division courses,
- 6 units of elective courses and 36 units of General Education courses (for Engineering Track)
- All SF State studies requirement need to be completed within the 36 units. If not, additional units of GE may be required to satisfy this requirement
- Course prerequisites are strictly enforced. Students not meeting the prerequisites can be administratively dropped.
- All required lower division courses must be passed before upper division courses can be taken

## Required Math and Science Lower Division Courses (minimum 22 units)

Course Number	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
CHEM 180	Chemistry for the Energy and the Environment	3				Category I or II QR/Math placement; or Category III or IV QR/Math placement; MATH 197© or GE Area 2/B4♥. HS Chemistry is recommended.
MATH 226	Calculus I	4				One of the following: MATH 198© or 199© or HS pre-calculus with B or better; or HS calculus ©
MATH 227	Calculus II	4				MATH 226©
MATH 245	Elementary Differential Equations & Linear Algebra	3				MATH 227©
PHYS 220/222	General Physics with Calculus I & Lab	4				Math 226© & PHYS 222♥ (MATH 227♥ recommended)
PHYS 230/232	General Physics with Calculus II & Lab	4				PHYS 220© & MATH 227© & PHYS 232♥

## Required Lower Division Courses for Computer Engineering (23 units)

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
100	Introduction to Engineering	3				High school algebra and trigonometry
205	Electric Circuits	3				PHYS 230 & MATH 245♥
206	Circuits and Instrumentation Lab	1				ENGR 205♥
212	Introduction to Unix/Linux for Engineers	2				ENGR majors & minors
213	Introduction to C Programming for Engineers	3				MATH 226©; ENGR 212©- or ENGR 104©-
214	Programming Laboratory	1				ENGR 213♥
221	Data Structures & Algorithms in Python	4				ENGR 213©-
282	Probability & Statistics for Engineers	3				MATH 226©
CSC 230	Discrete Mathematical Structures for Computer Science	3				ENGR 213©-, and MATH 227 ♥©

## Required Upper Division Courses for Computer Engineering (42 units)

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
305	Linear Systems Analysis	3				ENGR 205©- & MATH 245©-
340	Programming Methodology for Engineers	4				ENGR 221©-
354	Electronics for Computer Engineers	4				ENGR 205©- & ENGR 206©-
356	Digital Design	3				ENGR 205©-
357	Digital Design Laboratory	1				ENGR 356♥
378	Digital Systems Design	3				ENGR 356©-
413	Artificial Intelligence with Engineering Applications	3				ENGR 221©-; ENGR 281©- or, ENGR 282©-; MATH 245©-
451	Digital Signal Processing	4				ENGR 305©-; & ENGR 213©- or ENGR 281©- or ENGR 282©-
456	Computer Systems	3				ENGR 356©- & ENGR 213©-
476	Computer Communication Networks	3				ENGR 356©- & ENGR 213©-
478	Design with Microprocessors	4				ENGR 205©- & ENGR 213©-
498	Advanced Design with Microprocessors	4				ENGR 478©-

696	Engineering Design Project I	1				ENGR 478©-; 18 upper division ENGR units
697	Engineering Design Project II	2				GE Area 1A/A2 & ENGR 696

©- = Courses must have been passed with a grade of C- or better ♥ = Course may be taken concurrently

## Elective Courses

- A minimum of 6 upper division elective units is required and must be completed at SFSU.
- Upper division courses must have been taken within five years of graduation.
- Students with GPA of 3.0 or better may take graduate courses from this list with approval from advisor or Program Head: ENGR 844, 845, 848, 849, 850, 852, 853, 856, 858.

## Elective Upper Division Courses for Computer Engineering (minimum 6 units)

Course #	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
ENGR 415	Mechatronics	4				ENGR 305©- or ENGR307©-
ENGR 442	Operational Amplifier Systems Design	3				ENGR 305©-
ENGR 446	Control Systems Laboratory	1				ENGR 447♥
ENGR 447	Control Systems	3				ENGR 305©- or ENGR 307©-
ENGR 449	Communication Systems	3				ENGR 305©-
ENGR 453	Digital Integrated Circuit Design	4				ENGR 301©- or ENGR 354©-; ENGR 356©-
ENGR 454	ASIC Design	4				ENGR 356©-
ENGR 492	Hardware for Machine Learning	3				ENGR 213©-; ENGR 353©- or ENGR 354©-; ENGR 356©-
CSC 415	Operating Systems Principles	3				PHYS 230© & CSC 340© & CSC 256© & MATH 324©
CSC 510	Analysis of Algorithm I	3				CSC 340© & MATH 324©
CSC 648	Software Engineering	3				CSC 413© & CSC 317© & GPA 3.0 or higher or consent of instructor
CSC 650	Secured Networked Systems	3				CSC 415© or consent of instructor
CSC 667	Internet Application Design and Development	3				CSC 413© & GPA 3.0 or higher or consent of instructor
CSC 668	Object Oriented Programming	3				CSC 413© & GPA 3.0 or higher & senior or graduate standing, or consent of instructor
ENGR 844	Embedded Systems	3				Graduate Standing or consent of instructor
ENGR 845	Neural-Machine Interfaces: Design and Applications	3				Graduate Standing or consent of instructor
ENGR 848	Digital VLSI Design	3				Graduate Standing or consent of instructor
ENGR 849	Advance Analog IC Design	3				Graduate Standing or consent of instructor
ENGR 850	Digital Design Verification	3				Graduate Standing or consent of instructor
ENGR 851	Advance Microprocessor Architecture	3				Graduate Standing & ENGR 456 or instructor consent
ENGR 852	Advance Digital Design	3				Graduate Standing or consent of instructor
ENGR 853	Advance Topics in Computer Communication and Network	3				Graduate Standing or consent of instructor
ENGR 854	Wireless Data Communication Standards	3				Graduate Standing or consent of instructor
ENGR 856	Nanoscale Circuits and Systems	3				Graduate Standing or consent of instructor
ENGR 858	Hardware Security and Trust	3				Graduate Standing or consent of instructor
ENGR 859	On-Device Machine Learning	3				See SFSU Bulletin
ENGR 868	Advance Control Systems	3				Graduate Standing or consent of instructor
ENGR 869	Robotics	3				Graduate Standing or consent of instructor
ENGR 870	Robot Control	3				Graduate Standing or consent of instructor
ENGR 890	Static Timing Analysis for Nanometer Designs	3				Graduate Standing or consent of instructor
	Units Completed					
	<b>Minimum Required</b>	<b>6</b>				

It is intended to be used as a guideline for advising purposes. See SFSU Academic Bulletin for most recent major curriculum, course information & prerequisites.