

Required Courses

- 15 units of mathematics, 12 units of physics, 5 units of chemistry,
- 15 units of lower division engineering and computer science courses and 46 units of required upper division courses,
- 6 units of elective courses and 33 units of General Education courses (for Engineering Track)
- 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

Course Number	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
CHEM 115	General Chemistry I: Essential Concepts of Chemistry	5				550 or above on Entry Level Math (ELM) exam or approved exemption, or MATH 70© and satisfactory score on chemistry placement exam.
MATH 226	Calculus I	4				Successful completion of ELM requirement; MATH 109© or equivalent.
MATH 227	Calculus II	4				MATH 226©
MATH 228	Calculus III	4				MATH 227©
MATH 245	Elementary Differential Equations & Linear Algebra	3				MATH 227©
PHYS 220/222	General Physics with Calculus I & Lab	4				High school physics or equivalent; MATH 226©; PHYS 222♥; MATH 227♥
PHYS 230/232	General Physics with Calculus II & Lab	4				PHYS 220© and MATH 227©; PHYS 232♥
PHYS 240/242	General Physics with Calculus III & Lab	4				PHYS 220© and MATH 227©; PHYS 242♥

Required Lower Division Courses for Computer Engineering

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
ENGR 120	Introduction to Computer Engineering	3				High school algebra and trigonometry
CSC 210	Introduction to Computer Programming	3				MATH 226©
CSC 212	Introduction to Software Development in Unix	2				Consent of instructor
CSC 213	Fundamental of Computer Science	3				MATH 227© and CSC 210©, passing grade in CSC 212; CSC 212♥ for transfer student
ENGR 205	Electric Circuits	3				PHYS 230; MATH 245♥; ENGR 206♥
ENGR 206	Circuits and Instrumentation Lab	1				ENGR 205♥

Required Upper Division Courses for Computer Engineering

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
ENGR 300	Engineering Experimentation	3				ENGR 205; ENGR 206 or 200
ENGR 301	Electronics Laboratory	1				ENGR 300, 353♥
ENGR 305	Linear Systems Analysis	3				ENGR 205; MATH 245
CSC 313	Data Structures	3				CSC 213, CSC 330© or Math 330©
CSC 330 or Math 330	Discrete Mathematical Structures for Computer Science	3				CSC210©, Math 227©
ENGR 353	Electronics	3				ENGR 205©, 206©, 301♥
ENGR 356	Basic Computer Architecture	3				ENGR 205© or CSC 210©
ENGR 357	Basic Digital Laboratory	1				ENGR 356♥
ENGR 378	Digital Systems Design	3				ENGR 356©
CSC 413	Software Development	3				CSC 313©
ENGR 451	Digital Signal Processing	4				ENGR 305©, CSC 210 or ENGR 290
ENGR 456	Computer Systems	3				ENGR 356©
ENGR 476	Computer Communications Networks	3				ENGR 356©, CSC 210
ENGR 478	Design with Microprocessors	4				ENGR 356©

Required Upper Division Courses for Computer Engineering (continued)

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term	Yr	Prerequisite
ENGR 691	Computer Engineering Seminar	2					Complete 21 upper division CS and engineering units; pass JEPET or English 414♥ or 410♥ or 411♥
ENGR 692	Design Project	4					ENGR 691

© = Course must have been passed with a grade of C or better

♥ = Course must either be completed or taken concurrently

Technical Elective Courses

- A minimum of 6 upper division technical 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 ≥ 3.0 may take graduate courses from this list with approval from advisor or Program Head:
ENGR 842, 851, 852, 853.

Technical Elective Upper Division Courses for Computer Engineering

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term	Yr	Prerequisite
ENGR 306	Electromechanical Systems	3			F, S		ENGR 205©
ENGR 350	Introduction to Engineering Electromagnetics	3			F, S		Math 245 and Phys 240
ENGR 442	Operational Amplifier Systems Design	3			F		ENGR 305©, 353©
ENGR 443	Multimedia Systems	3					ENGR 301©, 353©
ENGR 446	Control Systems Laboratory	1			F		ENGR 447♥
ENGR 447	Control Systems	3			F		ENGR 305©
ENGR 449	Communications	3			F, S		ENGR 305©
ENGR 453	Digital Integrated Circuit Design	4			S		ENGR 203©, 301©, 353©, 356©b
ENGR 454	High Speed Circuit Board Design	3					ENGR 353©, ENGR 350©
ENGR 455	Power Electronics	4			F		ENGR 301©, 306©, 353©
ENGR 479	Real Time Systems	3			S		
CSC 415	Operating Systems Principles	3			F, S		Phys 230© and 232©, CSC 310©, CSC 313©, Math 324©
CSC 510	Analysis of Algorithm I	3			F, S		CSC 313©, Math 324©, and Math 325©
CSC 620	Natural Language Technologies	3					CSC 413©
CSC 630	Computer Graphics System Design	3			F, S		CSC313© and Math325©
CSC 635	Software Techniques for Computer Music	3					CSC 413© or consent of instructor
CSC 640	Software Engineering	3					CSC 413© or consent of instructor
CSC 642	Human Computer Interaction	3					CSC 413©
CSC 645	Computer Networks	3					CSC 415©
CSC 650	Secured Networked Systems	3					CSC 415 or consent of instructor
CSC 665	Artificial Intelligence	3					CSC 413©
CSC 667	Internet Application Design and Development	3					CSC 415 or consent of instructor
CSC 668	Object Oriented Programming	3					CSC 413©, senior or graduate standing, or consent of instructor
ENGR 8XX▪							
	Units Completed						
	Minimum Required	6					

Graduation Requirements

- Passed JEPET or Passed ENG 414
- Passed library requirement
- Completed GE Worksheet

Program Planning

Term	Year	Course Numbers					

Transferred Courses

Students wishing to transfer Math, Science, Computer Science and Engineering courses from other institutions must see the Program Head of Electrical and Computer Engineering in their first term of residence at SFSU. If you haven't yet done your transfer credit evaluation with the Program Head, you may not be able to enroll for courses, *so do it now!* Students transferring from California institutions just need to bring in their transcripts and this worksheet. Transfers of courses from other institutions are evaluated on a case-by-case basis. Students from these institutions should bring all relevant supporting material, including course syllabi, books, etc.

Course Number	Course Name	Institution	Course	Units†	Term/Year	Grade	Approval
CHEM 115	General Chemistry I: Essential Concepts of Chem.						
MATH 226	Calculus I						
MATH 227	Calculus II						
MATH 228	Calculus III						
MATH 245	Elementary Differential Equations & Linear Algebra						
PHYS 220/222	General Physics with Calculus I & Lab						
PHYS 230/232	General Physics with Calculus II & Lab						
PHYS 240/242	General Physics with Calculus III & Lab						
ENGR 120	Introduction to Computer Engineering						
ENGR 205	Electric Circuits						
ENGR 206	Circuits and Instrumentation						
CSC 210	Introduction to Computer Programming						
CSC 212	Introduction to Software Development in UNIX						
CSC 213	Fundamental of Computer Science						

† Express as semester units. Each quarter unit = 2/3 semester units

Examined by: _____ Signed: _____ Date: _____