



## Required Courses

- 15 units of required mathematics, 12 units of physics, and 3 units of chemistry.
- 18 units of required lower division engineering courses and 31 units of required upper division courses
- 12 units of engineering elective courses, and 36 units of General Education courses
- Course prerequisites are strictly enforced. Students not meeting the prerequisites are subject to being administratively dropped.

## Required Math and Science Lower Division Courses

Course Number	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
CHEM 180	Chemistry for the Energy and the Environment	3				MATH 70© or Entry Level Math (ELM) exam with a score of 50 or better (see bulletin for full details)
MATH 226	Calculus I	4				MATH 198© or 199© or equivalent or etc, (see bulletin for full details)
MATH 227	Calculus II	4				MATH 226©
MATH 228	Calculus III	4				MATH 227©
MATH 245	Elementary Differential Equations & Linear Algebra	3				MATH 228©
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© & MATH 227© & PHYS 232♥ (MATH 228♥ recommended)
PHYS 240/242	General Physics with Calculus III & Lab	4				PHYS 220© & MATH 227© & PHYS 242♥ (MATH 228♥ recommended)

## Required Lower Division Courses for Civil Engineering

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
100	Introduction to Engineering	1			F,S	High school algebra and trigonometry
101	Engineering Graphics	1			F,S	ENGR 100♥
102	Statics	3			F,S	MATH 227 & PHYS 220
200	Materials of Engineering	3			F,S	CHEM 180 or CHEM 115
201	Dynamics	3			F,S	ENGR 102
205	Electric Circuits	3			F,S	PHYS 230 & MATH 245♥
235	Surveying	3			F,S	ENGR 100 & MATH 226©
271	Intro to MATLAB	1			F,S	MATH 226©

## Required Upper Division Courses for Civil Engineering

ENGR	Course Name	Units	Grade	SFSU or Transfer	Term Yr	Prerequisite
300	Engineering Experimentation	3			F,S	ENGR 200©- & 205©-
302	Experimental Analysis	1			F,S	ENGR 300 & ENGR 304♥ & ENGR 309
304	Mechanics of Fluids	3			F,S	ENGR 201, PHYS 240
309	Mechanics of Solids	3			F,S	ENGR 102, ENGR 200♥
323	Structural Analysis	3			F,S	ENGR 309
425	Reinforced Concrete Structures	3			F,S	ENGR 323♥
429	Construction Management	3			F,S	ENGR 235
430	Soil Mechanics	3			F,S	ENGR 309
434	Prin. of Environmental Engr.	3			F,S	ENGR 304♥ & CHEM 180 or CHEM 115
436	Transportation Engineering	3			F,S	ENGR 235 & ENGR 430 ♥
696	Engineering Design Project I	1			F,S	Senior standing with 21 upper-division units in engineering & ENGR 300© or ENGR 301© (see SFSU Bulletin for GEAR information)
697	Engineering Design Project II	2			F,S	ENGR 696©

♥ = Course must either be completed or taken concurrently

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

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



