

# Civil Engineering Planning Worksheet

## 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
- 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 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 or CHEM 115	Chemistry for the Energy and the Environment (or General Chemistry)	3				Category I or II placement for QR/Math or Category III or IV need Math 197© (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	3			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 18 upper-division ENGR units or ENGR 323 & ENGR 300 & ENGR 301♥ or ENGR 302♥ (see SFSU Bulletin for GEAR information)
697	Engineering Design Project II	2			F,S	GE Area A2 & 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

## Elective Courses

- 12 upper division engineering elective units are required.
- Upper division courses must have been taken within 10 years of graduation.
- The courses selected should conform to focus area (Construction management, Geotechnical, Structural, or Environmental Engineering) curriculum recommendations.

## Elective Upper Division Courses for Civil Engineering

ENGR	Course Name	Units			Grade	SFSU or Transfer	Year Taken	Semester Offered	Prerequisite
		Tot	ES	ED					
426	Steel Structures	3	0	3			S	ENGR 323♥	
427	Wood Structures	3	0	3			F	ENGR 323♥	
431	Foundation Engineering	3	0	3			F	ENGR 430	
435	Environmental Engineering Design	3	1	2			S	CHEM 115 or CHEM 180	
438	Transportation Planning	3	2	1				ENGR 271 & Math 245♥	
439	Construction Engineering	3	1.5	1.5			S	ENGR 309 & ENGR 430♥	
441	Fundamentals of Composite Materials	3	1	2			S	ENGR 309 & Math 245	
461	Mechanical and Structural Vibrations	3	2.5	0.5			F	ENGR 201, 309, & MATH 245	
468	Applied Fluid Mechanics and Hydraulics	3	2	1			S	ENGR 304	
610	Engineering Cost Analysis	3	2	1			F,S	ENGR 103 or ENGR 213 or ENGR 271 & Math 227♥	
823	Introduction to Seismology ♦	3	2	1			Check schedule for course availability	Graduate standing and consent of instructor	
826	Seismic Hazards Analysis ♦	3	2	1					
827	Structural Design for Fire Safety ♦	3	2	1					
828	Seismic Isolation and Energy Dissipation♦	3	3	0					
829	Advanced Topics in Structural Engineering ♦	3	3	0					
831	Advanced Concrete Structures ♦	3	1	2					
832	Advanced Topics in Seismic Engineering	3	2	1					
833	Principles of Earthquake Engineering ♦	3	2	1					
835	Advanced Steel Structures ♦	3	1	2					
836	Structural Design for Earthquakes ♦	3	0	3					
837	Geotechnical Earthquake Engineering ♦	3	1.5	1.5					
838	Smart Structures Technology	3							
839	Advance Topics in Civil Engineering	3							
		Units Completed							
		<b>Minimum Required</b>	<b>12</b>		<b>7</b>				

♦ = GPA of 3 or better and consent of instructor are required to take graduate courses (in addition to prerequisites listed)

♥ = Course must be completed or taken concurrently

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