

BACHELOR OF SCIENCE IN CIVIL ENGINEERING ROADMAP – QUANTITATIVE REASONING CATEGORY 1/2

123 Total Units Required
Minimum Number of Units in Major: 93

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult your Degree Planner (<https://registrar.sfsu.edu/degreeplanner>) and an advisor for further guidance.

To avoid taking additional units, it is recommended that you meet the SF State Studies (AERM, GP, ESCA, SJ) requirements within your GE or major.

Course	Title	Units
First Semester		
ENGR 100	Introduction to Engineering (Major Core)	3
ENGR 101	Engineering Graphics (Major Core)	1
MATH 226	Calculus I (Major Core, GE 2) ¹	4
GE Area 1A: English Composition ²		3
GE Area 1C: Oral Communication		3
Units		14
Second Semester		
Select One (Major Core):		3-4
CHEM 115	General Chemistry I	
CHEM 180	Chemistry for Energy and the Environment (ESCA)	
ENGR 282	Probability and Statistics for Engineers (Major Core) ³	3
MATH 227	Calculus II (Major Core)	4
PHYS 220 & PHYS 222	General Physics with Calculus I and General Physics with Calculus I Laboratory (Major Core, GE 5A, GE 5C)	4
GE Area 5B: Biological Science		3
Units		17-18
Third Semester		
ENGR 102	Statics (Major Core)	3
ENGR 200	Materials of Engineering (Major Core)	3

MATH 228	Calculus III (Major Core)	4
PHYS 230 & PHYS 232	General Physics with Calculus II and General Physics with Calculus II Laboratory (Major Core)	4
GE Area 3: Arts and Humanities		3
Units		17
Fourth Semester		
ENGR 201	Dynamics (Major Core) ³	3
ENGR 235	Surveying (Major Core)	3
MATH 245	Elementary Differential Equations and Linear Algebra (Major Core)	3
PHYS 240 & PHYS 242	General Physics with Calculus III and General Physics with Calculus III Laboratory (Major Core)	4
Units		13
Fifth Semester		
ENGR 300	Engineering Experimentation (Major Core) ⁴	1
ENGR 304	Mechanics of Fluids (Major Core) ⁴	3
ENGR 309	Mechanics of Solids (Major Core)	3
ENGR 434	Principles of Environmental Engineering (Major Core)	3
GE Area 3: Arts and Humanities		3
GE Area 6: Ethnic Studies (https://bulletin.sfsu.edu/undergraduate-education/general-education/areasix/)		3
Units		16
Sixth Semester		
ENGR 302	Experimental Analysis (Major Core) ⁴	1
ENGR 323	Structural Analysis (Major Core)	3
ENGR 429	Construction Management (Major Core)	3
ENGR 430	Soil Mechanics (Major Core)	3
ENGR 436	Transportation Engineering (Major Core)	3

Major Upper-Division Electives ⁵		3
	Units	16
Seventh Semester		
ENGR 425	Reinforced Concrete Structures (Major Core)	3
ENGR 696	Engineering Design Project I (Major Core) ⁶	1
Major Upper-Division Electives – Take Two ⁵		6
GE Area 4: Social and Behavioral Sciences - Take Two ⁷		6
	Units	16
Eighth Semester		
ENGR 697GW	Engineering Design Project II - GVAR (Major Core)	2
Major Upper-Division Electives - Take Two ⁵		6
GE Area 3UD: Upper-Division Arts or Humanities ⁸		3
GE Area 4UD: Upper-Division Social and Behavioral Sciences ⁸		3
	Units	14
	Total Units	123-124

¹ Students should use their Pathway/Category (<https://gatorsmartstart.sfsu.edu/pathways>) to determine the appropriate GE 2 course option. For directions on how to view your Pathway/Category, visit how to find your pathway (<https://gatorsmartstart.sfsu.edu/howtofindyourpathways>). Questions? Contact Gator Smart Start. (<https://gatorsmartstart.sfsu.edu/>)

² Students should use their Pathway/Category (<https://gatorsmartstart.sfsu.edu/pathways>) to determine the appropriate GE 1A course option. For directions on how to view your Pathway/Category, visit how to find your pathway (<https://gatorsmartstart.sfsu.edu/howtofindyourpathways>). Questions? Contact Gator Smart Start. (<https://gatorsmartstart.sfsu.edu/>)

³ GE Area 1B: Critical Thinking is satisfied upon completion of ENGR 205 or ENGR 282 and either ENGR 201 or ENGR 213.

⁴ GE Area 5UD: Upper-Division Science is satisfied upon completion of ENGR 300, ENGR 302, and ENGR 304.

⁵ **Major Electives (15 units)**

A full list of courses that can fulfill this requirement can be found in the Degree Requirements (<https://bulletin.sfsu.edu/colleges/science-engineering/engineering/bs-civil-engineering/#degreerequirementstext>).

⁶ You must complete 15 units of upper-division Engineering units before registering for ENGR 696.

⁷ First-time freshmen must take one lower-division Area 4 course that meets US History (USH).

⁸ To avoid taking additional units, it is recommended that you meet **US and California Government** (USG/CSLG) within Upper-Division GE.