

BACHELOR OF SCIENCE IN CIVIL ENGINEERING ROADMAP – QUANTITATIVE REASONING CATEGORY III/IV

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, ES, 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 197	Prelude to Calculus I (Prerequisite for MATH 226) ¹	3
GE Area 1A: English Composition ²		3
GE Area 1C: Oral Communication		3
Units		13
Second Semester		
Select One (Major Core):		3-4
CHEM 115	General Chemistry I	
CHEM 180	Chemistry for Energy and the Environment (ES)	
MATH 198	Prelude to Calculus II (Prerequisite for MATH 226, GE 2) ¹	3
GE Area 3: Arts and Humanities		3
GE Area 4: Social and Behavioral Sciences ³		3
GE Area 5B: Biological Science		3
Units		15-16
Third Semester		
MATH 226	Calculus I (Major Core, GE 2) ¹	4
ENGR 200	Materials of Engineering (Major Core)	3
GE Area 3: Arts and Humanities		3
GE Area 4: Social and Behavioral Sciences ³		3
Units		13

Fourth Semester

ENGR 235	Surveying (Major Core)	3
ENGR 271	Introduction to MATLAB (Major Core)	1
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
Units		12

Fifth Semester

ENGR 102	Statics (Major Core)	3
ENGR 429	Construction Management (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
Units		14

Sixth Semester

ENGR 201	Dynamics (Major Core) ⁴	3
ENGR 205	Electric Circuits (Major Core) ⁴	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

Seventh Semester

ENGR 300	Engineering Experimentation (Major Core) ⁵	3
ENGR 304	Mechanics of Fluids (Major Core)	3
ENGR 309	Mechanics of Solids (Major Core)	3

ENGR 434	Principles of Environmental Engineering (Major Core)	3
Units		12
Eighth Semester		
ENGR 302	Experimental Analysis (Major Core) ⁵	1
ENGR 323	Structural Analysis (Major Core)	3
ENGR 430	Soil Mechanics (Major Core)	3
ENGR 436	Transportation Engineering (Major Core)	3
GE Area 6: Ethnic Studies (https://bulletin.sfsu.edu/undergraduate-education/general-education/areasix/)		3
Units		13
Ninth 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 ⁷		6
GE Area 3UD: Upper-Division Arts or Humanities ⁸		3
Units		13
Tenth Semester		
ENGR 697GW	Engineering Design Project II - GVAR (Major Core)	2
Major Upper-Division Electives – Take Two ⁷		6
GE Area 4UD: Upper-Division Social and Behavioral Sciences ⁸		3
Units		11
Total Units		129-130

⁷ **Major Electives (12 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>).

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

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/) (<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/) (<https://gatorsmartstart.sfsu.edu/howtofindyourpathways/>). Questions? Contact Gator Smart Start. (<https://gatorsmartstart.sfsu.edu/>)

³ First-time freshmen must take one lower-division Area 4 course that meets US History (USH).

⁴ GE Area 1C: Critical Thinking is satisfied upon completion of ENGR 205 and either ENGR 201 or ENGR 213.

⁵ GE Area 5UD: Upper-Division Science is satisfied upon completion of ENGR 300 and either ENGR 301 or ENGR 302.

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