

BACHELOR OF SCIENCE IN CIVIL ENGINEERING - QUANTITATIVE REASONING CATEGORY III/IV AND ENG 114

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

Course	Title	Units
First Semester		
ENG 114	Writing the First Year: Finding Your Voice (A2) ¹	3
ENGR 100	Introduction to Engineering (Major Core)	1
ENGR 101	Engineering Graphics (Major Core)	1
MATH 197	Prelude to Calculus I (Prerequisite for MATH 226) ^{2,3}	3
GE Area A: Oral Communication (A1) ^{4,5}		3
GE Area D		3
	Units	14
Second Semester		
Select One (Major Core):		3-5
CHEM 115	General Chemistry I: Essential Concepts of Chemistry	
CHEM 180	Chemistry for the Energy and the Environment (B1, B3, ES)	
MATH 198	Prelude to Calculus II (Prerequisite for MATH 226, B4) ^{2,3}	3
GE Area C		3
GE Area D		3
GE Area E		3
	Units	15-17
Third Semester		
ENGR 200	Materials of Engineering (Major Core)	3
MATH 226	Calculus I (Major Core, B4) ^{2,3}	4
GE Area B: Life Science (B2)		3
GE Area C		3
GE Area D		3
	Units	16
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, B1, B3)	4
GE Area C		3
	Units	15
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) ⁵	3
ENGR 205	Electric Circuits (Major Core) ⁵	3
ENGR 309	Mechanics of Solids (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	16
Seventh Semester		
ENGR 300	Engineering Experimentation ⁶	3
ENGR 304	Mechanics of Fluids	3
ENGR 323	Structural Analysis	3
ENGR 430	Soil Mechanics	3
Major Upper-Division Electives - Take One ⁷		3
	Units	15
Eighth Semester		
ENGR 302	Experimental Analysis ⁶	1

ENGR 436	Transportation Engineering	3
ENGR 425	Reinforced Concrete Structures	3
ENGR 434	Principles of Environmental Engineering	3
ENGR 696	Engineering Design Project I ⁸	1
Major Upper-Division Electives - Take Two ⁷		6
Units		17
Ninth Semester		
ENGR 697GW	Engineering Design Project II - GVAR	2
Major Upper-Division Electives - Take One ⁷		3
GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)		3
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3
Units		11
Total Units		133-135

¹ ENG 114 can only be taken if you complete Directed Self-Placement (DSP) and select ENG 114; if you choose ENG 104/ENG 105 through DSP you will satisfy A2 upon successful completion of 105 in the second semester; multilingual students may be advised into alternative English courses.

² Depending on courses completed through Early Start, students in Pathway/Category III or IV may be required to enroll in a support course to complement their Quantitative Reasoning/B4 requirement. There are multiple course options for this pathway. Before enrolling in a B4 course, students should verify their MATH Pathway/Category in their Student Center (<http://cms.sfsu.edu/content/student-center>). Information regarding the courses that correspond with your MATH Pathway/Category can be found on the Developmental Studies Office Website (<http://developmentalstudies.sfsu.edu>).

³ QR Category III students with a grade of B or higher in high school pre-calculus in the past year may be able to enroll in MATH 226. Please see a department advisor.

⁴ To avoid taking additional units, it is recommended that you meet **SF State Studies** requirements (AERM, GP, ES, SJ) within your GE.

⁵ GE Area A: Critical Thinking (A3) is satisfied upon completion of ENGR 205 and ENGR 201 or ENGR 213.

⁶ GE Area UD-B: Upper-Division Physical and/or Life Sciences is satisfied upon completion of ENGR 300 and either ENGR 301 or ENGR 302.

⁷ **Major Electives (12 units)**

- ENGR 303 Engineering Thermodynamics (3 units) (Prerequisite for ENGR 469)
- ENGR 426 Steel Structures (3 units)
- ENGR 427 Wood Structures (3 units)
- ENGR 431 Foundation Engineering (3 units)
- ENGR 432 Finite Element Methods in Structural and Continuum Mechanics (3 units)
- ENGR 435 Environmental Engineering Design (3 units)
- ENGR 439 Construction Engineering (3 units)
- ENGR 441 Fundamentals of Composite Materials (3 units)
- ENGR 461 Mechanical and Structural Vibrations (3 units)
- ENGR 468 Applied Fluid Mechanics and Hydraulics (3 units)
- ENGR 469 Alternative and Renewable Energy Systems (3 units)
- ENGR 610 Engineering Cost Analysis (3 units)
- ENGR 699 Independent Study (1-3 units)
- ENGR 826 Seismic Hazard Analysis (3 units)
- ENGR 827 Structural Design for Fire Safety (3 units)
- ENGR 829 Advanced Topics in Structural Engineering (3 units)
- ENGR 831 Advanced Concrete Structures (3 units)
- ENGR 832 Advanced Topics in Seismic Design (3 units)
- ENGR 833 Principles of Earthquake Engineering (3 units)
- ENGR 835 Advanced Steel Structures (3 units)
- ENGR 836 Structural Design for Earthquakes (3 units)
- ENGR 837 Geotechnical Earthquake Engineering (3 units)

⁸ You must complete 21 units of upper-division Engineering units before registering for ENGR 696.