# Bachelor of Science in Civil Engineering - Quantitative Reasoning Category III/IV and Stretch English

127 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 an advisor in your major program for further guidance.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
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<tr>
<td>ENG 104</td>
<td>Writing the First Year: Finding Your Voice Stretch I</td>
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<tr>
<td>ENGR 100</td>
<td>Introduction to Engineering (Major Core)</td>
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<td>ENGR 101</td>
<td>Engineering Graphics (Major Core)</td>
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<tr>
<td>MATH 197</td>
<td>Prelude to Calculus I (Prerequisite for MATH 226)</td>
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<tr>
<td>GE Area A: Oral Communication (A1)</td>
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<td>GE Area C</td>
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<tr>
<td><strong>Second Semester</strong></td>
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<tr>
<td>Select One (Major Core):</td>
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<tr>
<td>CHEM 115</td>
<td>General Chemistry I: Essential Concepts of Chemistry</td>
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<td>CHEM 180</td>
<td>Chemistry for the Energy and the Environment (B1, B3, ES)</td>
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<td>ENG 105</td>
<td>Writing the First Year: Finding Your Voice Stretch II (A2)</td>
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<td>MATH 198</td>
<td>Prelude to Calculus II (Prerequisite for MATH 226, B4)</td>
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<td>GE Area C</td>
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<tr>
<td>GE Area D</td>
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<tr>
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<tr>
<td>ENGR 200</td>
<td>Materials of Engineering (Major Core)</td>
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<td>MATH 226</td>
<td>Calculus I (Major Core)</td>
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<tr>
<td>GE Area B: Life Science (B2)</td>
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<td>GE Area D</td>
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<td>GE Area E</td>
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<tr>
<td>ENGR 235</td>
<td>Surveying (Major Core)</td>
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<td>ENGR 271</td>
<td>Introduction to MATLAB (Major Core)</td>
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<td>MATH 227</td>
<td>Calculus II (Major Core)</td>
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<tr>
<td>PHYS 220 &amp; PHYS 222</td>
<td>General Physics with Calculus I and General Physics with Calculus I Laboratory (Major Core, B1, B3)</td>
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<td>GE Area C</td>
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<td><strong>Units</strong></td>
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<tr>
<td>ENGR 102</td>
<td>Statics (Major Core)</td>
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<td>ENGR 429</td>
<td>Construction Management (Major Core)</td>
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<td>MATH 228</td>
<td>Calculus III (Major Core)</td>
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<td>PHYS 230 &amp; PHYS 232</td>
<td>General Physics with Calculus II and General Physics with Calculus II Laboratory (Major Core)</td>
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<td><strong>Sixth Semester</strong></td>
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<tr>
<td>ENGR 201</td>
<td>Dynamics (Major Core)</td>
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<td>ENGR 205</td>
<td>Electric Circuits (Major Core)</td>
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<td>ENGR 309</td>
<td>Mechanics of Solids (Major Core)</td>
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<tr>
<td>MATH 245</td>
<td>Elementary Differential Equations and Linear Algebra (Major Core)</td>
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<tr>
<td>PHYS 240 &amp; PHYS 242</td>
<td>General Physics with Calculus III and General Physics with Calculus III Laboratory (Major Core)</td>
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### Seventh Semester

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<tr>
<td>ENGR 300</td>
<td>Engineering Experimentation</td>
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<td>ENGR 304</td>
<td>Mechanics of Fluids</td>
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<td>ENGR 323</td>
<td>Structural Analysis</td>
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<td>ENGR 430</td>
<td>Soil Mechanics</td>
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<td><strong>Major Upper-Division Electives - Take One</strong></td>
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### Eighth Semester

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<tbody>
<tr>
<td>ENGR 302</td>
<td>Experimental Analysis</td>
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<td>ENGR 436</td>
<td>Transportation Engineering</td>
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<td>ENGR 425</td>
<td>Reinforced Concrete Structures</td>
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<td>ENGR 434</td>
<td>Principles of Environmental Engineering</td>
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<tr>
<td>ENGR 696</td>
<td>Engineering Design Project I</td>
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<tr>
<td><strong>Major Upper-Division Electives - Take Two</strong></td>
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### Ninth Semester

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<tbody>
<tr>
<td>ENGR 697GW</td>
<td>Engineering Design Project II - GWAR</td>
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<tr>
<td><strong>Major Upper-Division Electives - Take One</strong></td>
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<tr>
<td><strong>GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)</strong></td>
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<tr>
<td><strong>GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)</strong></td>
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<tr>
<td><strong>Units</strong></td>
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**Total Units**: 136-138

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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.