## MAJOR COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 111</td>
<td>Introduction to Civil Engineering</td>
<td>1</td>
</tr>
<tr>
<td>CE 112</td>
<td>Design Principles in Civil Engineering</td>
<td>2</td>
</tr>
<tr>
<td>CE 113</td>
<td>Computer Aided Drafting in Civil Engineering</td>
<td>2</td>
</tr>
<tr>
<td>CE 204</td>
<td>Mechanics of Materials I</td>
<td>2</td>
</tr>
<tr>
<td>CE 207</td>
<td>Mechanics of Materials II</td>
<td>2</td>
</tr>
<tr>
<td>CE 208</td>
<td>Mechanics of Materials</td>
<td>2</td>
</tr>
<tr>
<td>CE 222</td>
<td>Introductory Experiments in Transportation</td>
<td>1</td>
</tr>
<tr>
<td>CE 251</td>
<td>Programming Applications in Engineering</td>
<td>2</td>
</tr>
<tr>
<td>CE 259</td>
<td>Civil Engineering Materials</td>
<td>2</td>
</tr>
<tr>
<td>CE 321</td>
<td>Fundamentals of Transportation Engr</td>
<td>4</td>
</tr>
<tr>
<td>CE 336</td>
<td>Water Resources Engineering</td>
<td>5</td>
</tr>
<tr>
<td>CE 352</td>
<td>Structural Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CE 355</td>
<td>Reinforced Concrete Design</td>
<td>4</td>
</tr>
<tr>
<td>CE 371</td>
<td>Construction Mgmt and Project Planning</td>
<td>4</td>
</tr>
<tr>
<td>CE 381</td>
<td>Geotechnical Engineering</td>
<td>5</td>
</tr>
<tr>
<td>CE 465</td>
<td>Civil Engineering Professional Practice</td>
<td>1</td>
</tr>
<tr>
<td>CE 466</td>
<td>Senior Design Project I</td>
<td>6</td>
</tr>
<tr>
<td>CE 467</td>
<td>Senior Design Project II</td>
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</table>

## SUPPORT COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 213</td>
<td>Life Science for Engineers</td>
<td>4</td>
</tr>
<tr>
<td>BMED 213</td>
<td>and Bioengineering Fundamentals (B2)</td>
<td>5</td>
</tr>
<tr>
<td>BRAE 239</td>
<td>Engineering Surveying</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 124</td>
<td>Gen Chem for Physical Sci &amp; Engr I (B1 &amp; B3)</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 125</td>
<td>Gen Chem for Physical Sci &amp; Engr II</td>
<td>4</td>
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<tr>
<td>ENVE 331</td>
<td>Fundamentals of Environmental Engineering</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 201</td>
<td>Physical Geology</td>
<td>3</td>
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<tr>
<td>MATE 210</td>
<td>Materials Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MATE 215</td>
<td>Materials Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>Calculus I (B4)</td>
<td>5</td>
</tr>
<tr>
<td>MATH 142</td>
<td>Calculus II (B4)</td>
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</tr>
<tr>
<td>MATH 143</td>
<td>Calculus III (Area B Electives)</td>
<td>5</td>
</tr>
<tr>
<td>MATH 241</td>
<td>Calculus IV</td>
<td>4</td>
</tr>
<tr>
<td>MATH 244</td>
<td>Linear Analysis I</td>
<td>4</td>
</tr>
<tr>
<td>ME 211</td>
<td>Engineering Statics</td>
<td>3</td>
</tr>
<tr>
<td>ME 212</td>
<td>Engineering Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 341</td>
<td>Fluid Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 141</td>
<td>General Physics IA (Area B Electives)</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 132</td>
<td>General Physics II</td>
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</tr>
<tr>
<td>PHYS 133</td>
<td>General Physics III</td>
<td>4</td>
</tr>
<tr>
<td>STAT 312</td>
<td>Statistical Methods for Engineers (Upper-Division B)</td>
<td>5</td>
</tr>
</tbody>
</table>

## APPROVED ENGINEERING SCIENCE ELECTIVE

<table>
<thead>
<tr>
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<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>STAT 312</td>
<td>Statistical Methods for Engineers (Upper-Division B)</td>
<td>5</td>
</tr>
</tbody>
</table>

## GENERAL EDUCATION

### Area A English Language Communication and Critical Thinking

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Oral Communication</td>
<td>4</td>
</tr>
<tr>
<td>A2</td>
<td>Written Communication</td>
<td>4</td>
</tr>
<tr>
<td>A3</td>
<td>Critical Thinking</td>
<td>4</td>
</tr>
</tbody>
</table>

### Area B Scientific Inquiry and Quantitative Reasoning

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Physical Science (4 units in Support)</td>
<td>5</td>
</tr>
<tr>
<td>B2</td>
<td>Life Science (4 units in Support)</td>
<td>5</td>
</tr>
<tr>
<td>B3</td>
<td>One lab taken with either a B1 or B2 course</td>
<td>0</td>
</tr>
<tr>
<td>B4</td>
<td>Mathematics/Quantitative Reasoning (8 units in Support)</td>
<td>5</td>
</tr>
<tr>
<td>B5</td>
<td>Upper-Division B (4 units in Support)</td>
<td>5</td>
</tr>
<tr>
<td>B6</td>
<td>Area B Electives (8 units in Support)</td>
<td>5</td>
</tr>
</tbody>
</table>

### Area C Arts and Humanities

Lower-division courses in Area C must come from three different subject prefixes.

- C1: Arts
- C2: Humanities

### Area D Social Sciences

- D1: American Institutions (Title 5, Section 40404 Requirement)
- D2: American Institutions (Title 5, Section 40404 Requirement)

### Area E Lifelong Learning and Self-Development

Lower-Division E

### Area F Ethnic Studies

Lower-Division F

### TOTAL DEGREE UNITS

190-192

### SUPPORT COURSES

- BIO 213 Life Science for Engineers
- BMED 213 Bioengineering Fundamentals (B2)
- BRAE 239 Engineering Surveying
- CHEM 124 Gen Chem for Physical Sci & Engr I (B1 & B3)
- CHEM 125 Gen Chem for Physical Sci & Engr II
- ENVE 331 Fundamentals of Environmental Engineering
- GEOL 201 Physical Geology
- MATE 210 Materials Engineering
- MATE 215 Materials Laboratory I
- MATH 141 Calculus I (B4)
- MATH 142 Calculus II (B4)
- MATH 143 Calculus III (Area B Electives)
- MATH 241 Calculus IV
- MATH 244 Linear Analysis I
- ME 211 Engineering Statics
- ME 212 Engineering Dynamics
- ME 341 Fluid Mechanics I
- PHYS 141 General Physics IA (Area B Electives)
- PHYS 132 General Physics II
- PHYS 133 General Physics III
- STAT 312 Statistical Methods for Engineers (Upper-Division B)

### APPROVED ENGINEERING SCIENCE ELECTIVE

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<tbody>
<tr>
<td>STAT 312</td>
<td>Statistical Methods for Engineers (Upper-Division B)</td>
<td>5</td>
</tr>
</tbody>
</table>

### FOOTNOTES

1. Transfer students take CE 208 in the Fall Quarter.
2. Consultation with advisor is recommended prior to selecting Technical or Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.
3. Additional guidelines for Technical Electives:
   - More than 4 units of coursework outside CE/ENVE is only permitted in special/unusual cases and requires written justification by the student, and approval by the Department Chair.
   - No more than 4 combined units of CE 400, CE 500 and ENVE 400, ENVE 500 can count towards the degree.
   - No more than 8 combined units of CE 470 / ENVE 470, CE 471 / ENVE 471, CE 570 / ENVE 570, CE 571 / ENVE 571 can be credited.
   - Bo-op, graduate seminar, senior project/design, and thesis courses are not permitted.
4. Only one course can be credited for CE 459 / CE 556
5. Degree credit will only be given to one of the following courses: IME 314 or IME 315.
6. Required in Major or Support; also satisfies General Education (GE) requirement.
## Major Technical Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCE 305</td>
<td>Masonry Design</td>
</tr>
<tr>
<td>ARCE 372</td>
<td>Steel Structures Design Laboratory</td>
</tr>
<tr>
<td>BIO/NR/SS 421</td>
<td>Wetlands</td>
</tr>
<tr>
<td>BMED/CE/ME 404</td>
<td>Applied Finite Element Analysis</td>
</tr>
<tr>
<td>BRAE 345</td>
<td>Aerial Photogrammetry and Remote Sensing</td>
</tr>
<tr>
<td>BRAE 447</td>
<td>Advanced Surveying with GIS Applications</td>
</tr>
<tr>
<td>BRAE 532</td>
<td>Water Wells and Pumps</td>
</tr>
<tr>
<td>CHEM 341</td>
<td>Environmental Chemistry; Water Pollution</td>
</tr>
<tr>
<td>CM 310</td>
<td>Construction Means and Methods</td>
</tr>
<tr>
<td>CM 334</td>
<td>Construction Law</td>
</tr>
<tr>
<td>CRP 420</td>
<td>Land Use Law</td>
</tr>
<tr>
<td>CRP 435</td>
<td>Transportation Theory</td>
</tr>
<tr>
<td>CRP/NR 404</td>
<td>Environmental Law</td>
</tr>
<tr>
<td>CRP/NR 408</td>
<td>Water Resource Law and Policy</td>
</tr>
<tr>
<td>ERSC 442</td>
<td>Applied Environmental Groundwater Hydrology</td>
</tr>
<tr>
<td>ERSC/GEOL 401</td>
<td>Field-Geology Methods</td>
</tr>
<tr>
<td>ERSC/GEOL 402</td>
<td>Geologic Mapping</td>
</tr>
<tr>
<td>GEOL 415</td>
<td>Structural Geology</td>
</tr>
<tr>
<td>IME 314</td>
<td>Engineering Economics</td>
</tr>
<tr>
<td>or IME 315</td>
<td>Financial Decision Making for Engineers</td>
</tr>
<tr>
<td>MATE 425</td>
<td>Corrosion Engineering</td>
</tr>
<tr>
<td>MATE 450</td>
<td>Fracture and Failure Analysis</td>
</tr>
<tr>
<td>MATH 344</td>
<td>Linear Analysis II</td>
</tr>
<tr>
<td>ME 302</td>
<td>Thermodynamics I</td>
</tr>
</tbody>
</table>

In consultation with faculty advisor, select from CE 356, ENVE 325, CE/CM 436 and any 400-500 level CE and ENVE courses not required in Major Courses (a maximum of 4 units may be selected from the following list):

## Support Area Approved Engineering Science Elective

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM 280</td>
<td>Building Information Modeling</td>
</tr>
<tr>
<td>CSC 231</td>
<td>Programming for Engineering Students</td>
</tr>
<tr>
<td>CSC 234</td>
<td>C and Unix</td>
</tr>
<tr>
<td>EE 201</td>
<td>Electric Circuit Theory</td>
</tr>
<tr>
<td>IME 314</td>
<td>Engineering Economics</td>
</tr>
<tr>
<td>or IME 315</td>
<td>Financial Decision Making for Engineers</td>
</tr>
<tr>
<td>MATH 304</td>
<td>Vector Analysis</td>
</tr>
<tr>
<td>MATH 344</td>
<td>Linear Analysis II</td>
</tr>
</tbody>
</table>

Select from the following:

- Financial Decision Making for Engineers
- Structural Geology
- Engineering Economics
- Engineering Economics
- Water Resource Law and Policy
- Applied Environmental Groundwater Hydrology
- Applied Finite Element Analysis
- Aerial Photogrammetry and Remote Sensing
- Geologic Mapping
- Field-Geology Methods
- Thermodynamics I
- Vector Analysis
- Linear Analysis II
- Fracture and Failure Analysis
- Corrosion Engineering
- Water Wells and Pumps
- Wetlands
- Environmental Chemistry: Water Pollution
- Construction Means and Methods
- Construction Law
- Land Use Law
- Transportation Theory
- Environmental Law
- Water Resource Law and Policy