CIVIL ENGINEERING - BS, COASTAL AND OCEAN ENGINEERING TRACK

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering (Note: not all programs listed are offered in Qatar). The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107</td>
<td>General Chemistry for Engineering Students 1,4</td>
</tr>
<tr>
<td>CHEM 117</td>
<td>General Chemistry for Engineering Students Laboratory 1,4</td>
</tr>
<tr>
<td>ENGL 103 or ENGR 104</td>
<td>Introduction to Rhetoric and Composition 1,4</td>
</tr>
<tr>
<td>ENGR 102</td>
<td>Engineering Lab I - Computation 1,2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>Engineering Mathematics I 1,2</td>
</tr>
<tr>
<td>University Core Curriculum (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a>) 3</td>
<td>3</td>
</tr>
<tr>
<td>Semester Credit Hours</td>
<td>16</td>
</tr>
</tbody>
</table>

Spring

| ENGR 216/ | Experimental Physics and Engineering Lab II - Mechanics 1 | 2 |
| PHYS 216 |  |  |
| MATH 152 | Engineering Mathematics II 1 | 4 |
| PHYS 206 | Newtonian Mechanics for Engineering and Science 1 | 3 |
| University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3 | 3 |
| Select one of the following: | 3-4 |
| CHEM 120 | Fundamentals of Chemistry II 1,4 |  |

Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 207</td>
<td>Introduction to the Civil Engineering Profession</td>
</tr>
<tr>
<td>CVEN 221</td>
<td>Engineering Mechanics: Statics</td>
</tr>
<tr>
<td>CVEN 250</td>
<td>Introduction to Graphics and Visualization Applications in Civil Engineering Design</td>
</tr>
<tr>
<td>ENGR 217/</td>
<td>Experimental Physics and Engineering Lab III - Electricity and Magnetism</td>
</tr>
<tr>
<td>PHYS 217</td>
<td></td>
</tr>
<tr>
<td>MATH 251</td>
<td>Engineering Mathematics III</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity and Magnetism for Engineering and Science</td>
</tr>
<tr>
<td>STAT 211</td>
<td>Principles of Statistics I</td>
</tr>
<tr>
<td>Semester Credit Hours</td>
<td>18</td>
</tr>
</tbody>
</table>

Spring

| CVEN 302 | Computer Applications in Engineering and Construction | 3 |
| CVEN 303 | Civil Engineering Measurement | 3 |
| CVEN 305 | Mechanics of Materials | 3 |
### Total Program Hours 128

**Coastal and Ocean Engineering Track - Technical Coursework**

Technical coursework for the BS in Civil Engineering, Coastal and Ocean Engineering Track are composed of breadth courses (10-12 semester credit hours), design courses (6-15 semester credit hours), focus courses (2-13 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 301/301</td>
<td>Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 339/339</td>
<td>Water Resources Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 304/304</td>
<td>Environmental Engineering Lab ^1</td>
<td></td>
</tr>
<tr>
<td>CVEN 344/344</td>
<td>Fluid Dynamics Laboratory ^1</td>
<td></td>
</tr>
<tr>
<td>CVEN 342/342</td>
<td>Materials of Construction ^1</td>
<td></td>
</tr>
<tr>
<td>CVEN 347/347</td>
<td>Portland Cement Concrete Materials for Civil Engineers</td>
<td></td>
</tr>
<tr>
<td>CVEN 357/357</td>
<td>Introduction to Geotechnical Engineering ^1</td>
<td></td>
</tr>
<tr>
<td>CVEN 407/407</td>
<td>Environmental Unit Operations Laboratory ^1</td>
<td></td>
</tr>
<tr>
<td>CVEN 353/353</td>
<td>Coastal Resilience ^1</td>
<td></td>
</tr>
<tr>
<td>CVEN 406/406</td>
<td>Engineered Environmental Systems</td>
<td></td>
</tr>
<tr>
<td>CVEN 405/405</td>
<td>Urban Stormwater Management</td>
<td></td>
</tr>
<tr>
<td>CVEN 458/458</td>
<td>Hydraulic Engineering of Water</td>
<td></td>
</tr>
<tr>
<td>CVEN 459/459</td>
<td>Distribution Systems</td>
<td></td>
</tr>
<tr>
<td>CVEN 460/460</td>
<td>Engineering Hydrogeology</td>
<td></td>
</tr>
</tbody>
</table>

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

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6 A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

7 All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 413</td>
<td>Natural Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 413</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVEN 423</td>
<td>Geomatics for Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 450</td>
<td>AutoCAD in Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 463/</td>
<td>Engineering Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 463</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVEN 464</td>
<td>Environmental Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 485</td>
<td>Directed Studies</td>
<td>2</td>
</tr>
<tr>
<td>CVEN 491</td>
<td>Research</td>
<td>2</td>
</tr>
<tr>
<td>EVEN 466</td>
<td>Sustainability and Life Cycle</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Analysis</td>
<td></td>
</tr>
</tbody>
</table>

**SCIENCE**

Select from the following: 3

- ATMO 201 Weather and Climate
- ATMO 363 Introduction to Atmospheric Chemistry and Air Pollution
- BIOL 113 Essentials in Biology
- BESC 201 Introduction to Bioenvironmental Sciences
- GEOL 104 Physical Geology
- GEOL 320 Geology for Civil Engineers
- GEOG 203 Planet Earth
- GEOS 105 Introduction to Environmental Geoscience
- OCNG 310 Physical Oceanography
- RENR 205 Fundamentals of Ecology
- RENR 375 Conservation of Natural Resources

**CAPSTONE DESIGN**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 400</td>
<td>Design Problems in Civil Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Semester Credit Hours 35

1. The following courses satisfy the laboratory course requirement, CVEN 304/EVEN 304, CVEN 336, CVEN 342 or CVEN 343, CVEN 365, EVEN 404.

2. Up to 2 hours of CVEN 485 or CVEN 491 may be used.