## OCEAN ENGINEERING - BS

### 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

#### Fall

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

#### Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 216/PHYS 216</td>
<td>Experimental Physics and Engineering Lab II - Mechanics 1</td>
<td>2</td>
</tr>
<tr>
<td>MATH 152</td>
<td>Engineering Mathematics II 1</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Newtonian Mechanics for Engineering and Science 1</td>
<td>3</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>
<td></td>
</tr>
<tr>
<td><strong>Select one of the following:</strong></td>
<td></td>
<td><strong>3-4</strong></td>
</tr>
<tr>
<td>CHEM 120</td>
<td>Fundamentals of Chemistry II 1,4</td>
<td></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>) 3,5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
<td></td>
<td><strong>15-16</strong></td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
<td></td>
<td><strong>31-32</strong></td>
</tr>
</tbody>
</table>

1 A grade of C or better is required.

2 Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.

3 Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) courses and cultural discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/) courses.

4 BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.

5 For BS-PETE, allocate 3 hours to core communications course (ENG 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENG 203, ENGL 210, or COMM 205) and/or 3 hours to UCC elective.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCEN 351</td>
<td>Rigid Body Dynamics For Ocean Engineers</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 361</td>
<td>Applied Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>OCNG 310</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>or MARS 410</td>
<td>or Physical Oceanography</td>
<td>3</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>
<td></td>
</tr>
</tbody>
</table>

**Semester Credit Hours 16**

### Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCEN 265</td>
<td>Introduction to Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 300</td>
<td>Ocean Engineering Wave Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 345</td>
<td>Theory of Ocean Engineering Structures</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 352</td>
<td>Vibrations and Control for Ocean Engineers</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 362</td>
<td>Hydromechanics</td>
<td>3</td>
</tr>
<tr>
<td>High Impact Experience</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>OCEN 399</td>
<td>Leadership and Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

**Semester Credit Hours 15**

### Fourth Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCEN 400</td>
<td>Basic Coastal Engineering</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 402</td>
<td>Principles of Naval Architecture</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 403</td>
<td>Dynamics of Offshore Structures</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 406</td>
<td>Capstone Design I</td>
<td>1</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>
<td></td>
</tr>
<tr>
<td>Technical Elective I 7</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Semester Credit Hours 16**

#### Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCEN 407</td>
<td>Design of Ocean Engineering Facilities II</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 410</td>
<td>Ocean Engineering Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>OCEN 451</td>
<td>Robotic Marine Vehicles for Ocean Engineers</td>
<td>3</td>
</tr>
<tr>
<td>OCEN 481</td>
<td>Seminar</td>
<td>1</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>
<td></td>
</tr>
<tr>
<td>Technical elective II 7</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Semester Credit Hours 15**

**Total Semester Credit Hours 97**

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6 All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the OCEN advising office.

7 This technical elective must be approved by the department head or the undergraduate advisor. Technical electives are chosen from the approved technical elective list.

8 All students must take at least two courses in their major that are designated as writing intensive (W). OCEN 407 and OCEN 410 taken at Texas A&M satisfy this requirement.

A grade of C or better is required in all required mathematics (MATH) and ocean engineering (OCEN) courses taken to satisfy degree requirements.

**Total Program Hours 128**