INDUSTRIAL 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 107/117 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>Semester</th>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>CHEM 107</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Chemistry for Engineering Students</td>
<td>1,4</td>
</tr>
<tr>
<td></td>
<td>CHEM 117</td>
<td>1</td>
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<tr>
<td></td>
<td>General Chemistry for Engineering Students Laboratory</td>
<td>1,4</td>
</tr>
<tr>
<td></td>
<td>ENGL 103</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENGL 104</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENGR 102</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ENGR 151</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Engineering Lab I - Computation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Engineering Mathematics I</td>
<td>1,2</td>
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<tr>
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<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>)</td>
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</table>

Semester Credit Hours: 16

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Spring</td>
<td>ENGR 216/217</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PHYS 216</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MATH 152</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PHYS 206</td>
<td>3</td>
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<tr>
<td></td>
<td>Engineering Physics and Engineering Lab</td>
<td>II - Mechanics</td>
</tr>
<tr>
<td></td>
<td>Engineering Mathematics II</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Newtonian Mechanics for Engineering and Science</td>
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<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>)</td>
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</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>3-4</td>
</tr>
<tr>
<td></td>
<td>CHEM 120</td>
<td>1,4</td>
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<tr>
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<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>)</td>
<td>3,5</td>
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</tbody>
</table>

Semester Credit Hours: 15-16

Total Semester Credit Hours: 31-32

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 107/117 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 107/117.

5 For BS-PETE, allocate 3 hours to core communications course (ENGL 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 (ENGL 203, ENGL 210, or COMM 205) and/or 3 hours to UCC elective.
### Third Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISEN 310</td>
<td>Uncertainty Modeling for Industrial Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ISEN 320</td>
<td>Operations Research I</td>
<td>3</td>
</tr>
<tr>
<td>ISEN 330</td>
<td>Human Systems Interaction</td>
<td>3</td>
</tr>
<tr>
<td>MATH 308</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MSEN 222/MEEN 222</td>
<td>Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
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<tr>
<td>BAEN 320</td>
<td>Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ECEN 215</td>
<td>Principles of Electrical Engineering</td>
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</tr>
<tr>
<td>MEEN 315</td>
<td>Principles of Thermodynamics</td>
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#### Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ISEN 340</td>
<td>Operations Research II</td>
<td>3</td>
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<tr>
<td>ISEN 350</td>
<td>Quality Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ISEN 355</td>
<td>System Simulation</td>
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<tr>
<td>ISEN 370</td>
<td>Production Systems Engineering</td>
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<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>)</td>
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<tr>
<td>High Impact Experience</td>
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</tr>
<tr>
<td>ISEN 399</td>
<td>Professional Development</td>
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### Fourth Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
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<tbody>
<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>)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Technical electives</td>
<td></td>
<td>9</td>
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#### Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISEN 460</td>
<td>Capstone Senior Design</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>)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Technical electives</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

### Total Program Hours 128

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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 INEN advising office.

7 A total of 18 hours of technical electives is required, of which 12 hours must be industrial engineering courses. The choice of courses to be taken must be made in consultation with the student's advisor and/or the Industrial Engineering Advising Office.

The Bachelor of Science degree in Industrial Engineering requires a grade of C or better for required industrial engineering (ISEN) courses. If a course is repeated, only the most recent grade is used in fulfilling this requirement.