Chemical engineers are concerned with the application of knowledge gained from basic sciences and practical experience to the development, design, operation and management of plants and processes for economical and safe conversion of chemical raw materials to useful products. Because chemical engineering is the most broadly based of all engineering disciplines, the chemical engineer is in great demand in diverse technical and supervisory areas in a wide variety of industries and has consistently commanded one of the highest starting salaries of all college graduates.

In addition to dominating the extensive chemical, petroleum and petrochemical industries, for which Qatar and the rest of the Middle East are one of the world’s leading regions, chemical engineers are leaders in such areas as food and pharmaceutical processing, biochemical and biomedical engineering, pollution control and abatement, polymers and plastics, ceramics and other advanced materials, corrosion, automation and instrumentation, aerospace materials, computer technology and data processing, safety, environmental control, and many others.

Visit the Chemical Engineering Program’s website at www.qatar.tamu.edu/programs/chemical-engineering/.

Program Requirements

The freshman year is identical for degrees in electrical engineering, mechanical engineering, petroleum engineering. The freshman year is slightly different for chemical engineering in that students take CHEM 119 or CHEM 107/CHEN 117 and CHEM 120. 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.

<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>CHEM 119 is slightly different for chemical engineering students who take CHEM 119 or CHEM 107/CHEN 117 and CHEM 120. 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.</th>
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<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>CHEM 107</td>
<td>General Chemistry for Engineering Students 1,4</td>
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<tr>
<td>CHEM 117</td>
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<tr>
<td>ENGL 104</td>
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<tr>
<td>ENGR 102</td>
<td>Engineering Lab I - Computation 1</td>
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<td>MATH 151</td>
<td>Engineering Mathematics I 1,2</td>
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<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>CHEM 227</td>
<td>Organic Chemistry I &amp; Organic Chemistry Laboratory 1</td>
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<tr>
<td>&amp; CHEM 237</td>
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<tr>
<td>CHEN 201</td>
<td>Elementary Chemical Engineering Lab</td>
</tr>
<tr>
<td>CHEN 204</td>
<td>Elementary Chemical Engineering</td>
</tr>
<tr>
<td>ENGR 217/</td>
<td>Experimental Physics and Engineering Lab</td>
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<tr>
<td>PHYS 217</td>
<td>III - Electricity and Magnetism 1</td>
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<tr>
<td>MATH 251</td>
<td>Engineering Mathematics III 1</td>
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<td>PHYS 207</td>
<td>Electricity and Magnetism for Engineering and Science 1</td>
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<td><strong>Spring</strong></td>
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<tr>
<td>CHEM 228</td>
<td>Organic Chemistry II &amp; Organic Chemistry Laboratory 1</td>
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<tr>
<td>&amp; CHEM 238</td>
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<tr>
<td>CHEN 205</td>
<td>Chemical Engineering Thermodynamics I</td>
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<tr>
<td>ENGL 210</td>
<td>Technical and Professional Writing</td>
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<td>MATH 308</td>
<td>Differential Equations 1</td>
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<td><strong>Third Year</strong></td>
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<tr>
<td>CHEN 304</td>
<td>Chemical Engineering Fluid Operations</td>
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<tr>
<td>CHEN 320</td>
<td>Numerical Analysis for Chemical Engineers</td>
</tr>
<tr>
<td>CHEN 322</td>
<td>Chemical Engineering Materials</td>
</tr>
<tr>
<td>CHEN 354</td>
<td>Chemical Engineering Thermodynamics II</td>
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<tr>
<td>CHEN 481</td>
<td>Seminar</td>
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University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3

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**Spring**

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<thead>
<tr>
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<tbody>
<tr>
<td>CHEM 322</td>
<td>Physical Chemistry for Engineers</td>
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<tr>
<td>CHEN 323</td>
<td>Chemical Engineering Heat Transfer Operations</td>
<td>3</td>
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<td>CHEN 324</td>
<td>Chemical Engineering Mass Transfer Operations</td>
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<td>CHEN 364</td>
<td>Kinetics and Reactor Design</td>
<td>3</td>
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<td>CHEN 374</td>
<td>Chemical Engineering Process Industries</td>
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<tr>
<th>Course Code</th>
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<tr>
<td>High Impact Experience</td>
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<tr>
<td>CHEN 399</td>
<td>Mid-Curriculum Professional Development</td>
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**Fourth Year**

**Fall**

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<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CHEN 425</td>
<td>Process Integration, Simulation and Economics</td>
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<tr>
<td>CHEN 432</td>
<td>Chemical Engineering Laboratory I</td>
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<tr>
<td>CHEN 461</td>
<td>Process Dynamics and Control</td>
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<td>CHEN 482</td>
<td>Bioprocess Engineering</td>
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<td>CHEN specialty options</td>
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**Spring**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CHEN 426</td>
<td>Chemical Engineering Plant Design</td>
<td>3</td>
</tr>
<tr>
<td>CHEN 433</td>
<td>Chemical Engineering Laboratory II</td>
<td>2</td>
</tr>
<tr>
<td>CHEN 455/SENG 455</td>
<td>Process Safety Engineering</td>
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<tr>
<th>Course Code</th>
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<td>CHEN specialty options</td>
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<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
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</table>

| Total Semester Credit Hours | 96 |

5 See an academic advisor for a list of approved courses.
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 advising office.

A grade of C or better is required in all CHEN courses.

**Total Program Hours 128**