MULTIDISCIPLINARY ENGINEERING TECHNOLOGY - BS, STEM EDUCATION 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>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>CHEM 107</td>
<td>General Chemistry for Engineering Students</td>
<td>3</td>
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<td></td>
<td>CHEM 117</td>
<td>General Chemistry for Engineering Students Laboratory</td>
<td>1</td>
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<tr>
<td></td>
<td>ENGL 103</td>
<td>Introduction to Rhetoric and Composition</td>
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<tr>
<td></td>
<td>ENGR 102</td>
<td>Engineering Lab I - Computation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MATH 151</td>
<td>Engineering Mathematics I</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>
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<td>Semester Credit Hours</td>
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<table>
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<tr>
<th>Semester</th>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Spring</td>
<td>ENGR 216/</td>
<td>Experimental Physics and Engineering Lab II - Mechanics</td>
<td>2</td>
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<tr>
<td></td>
<td>PHYS 216</td>
<td>II - Mechanics</td>
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<tr>
<td></td>
<td>MATH 152</td>
<td>Engineering Mathematics II</td>
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<td></td>
<td>PHYS 206</td>
<td>Newtonian Mechanics for Engineering and Science</td>
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<td>Select one of the following:</td>
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<tr>
<td></td>
<td>CHEM 120</td>
<td>Fundamentals of Chemistry II</td>
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<td>Semester Credit Hours</td>
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Second Year

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<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Fall</td>
<td>ENGR 217/</td>
<td>Experimental Physics and Engineering Lab III - Electricity and Magnetism</td>
<td>2</td>
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<tr>
<td></td>
<td>PHYS 217</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESET 210</td>
<td>Circuit Analysis</td>
<td>4</td>
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<td>ESET 219</td>
<td>Digital Electronics</td>
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<tr>
<td></td>
<td>MMET 207</td>
<td>Metallic Materials</td>
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<td>PHYS 207</td>
<td>Electricity and Magnetism for Engineering and Science</td>
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<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>Spring</td>
<td>ESET 269</td>
<td>Embedded Systems Development in C</td>
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<td>ESET 350</td>
<td>Analog Electronics</td>
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<td>INST 210</td>
<td>Understanding Special Populations</td>
<td>3</td>
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<td>MMET 275</td>
<td>Mechanics for Technologists</td>
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<td>MMET 370</td>
<td>Thermodynamics for Technologists</td>
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<td>Semester Credit Hours</td>
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1 A grade of C or better is required.
2 For BS-PETE, allocate 3 hours of core communications course (ENG 210, COMM 203, COMM 205, or COMM 243) and/or 3 from UCC. For BS-MEEN, allocate 3 hours for core communications course (ENG 203, ENG 210, or COMM 205) and/or 3 hours to UCC elective.
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), 3 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 of 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, ENG 210, or COMM 205) and/or 3 hours to UCC elective.
<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Summer</td>
<td>Math elective</td>
<td>1,7</td>
<td>3</td>
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<tr>
<td>Third Year</td>
<td>ESET 349</td>
<td>Microcontroller Architecture 1,6</td>
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<td>MXET 375</td>
<td>Applied Dynamic Systems 1</td>
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<tr>
<td></td>
<td>MMET 376</td>
<td>Strength of Materials 1,6</td>
<td>4</td>
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<tr>
<td></td>
<td>TEFB 322</td>
<td>Teaching and Schooling in Modern Society 1,6</td>
<td>3</td>
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<td>Technical elective 1,7</td>
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<td><strong>Semester Credit Hours</strong></td>
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<tr>
<td>Spring</td>
<td>ENTC 399</td>
<td>High Impact Experience 8</td>
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<td>ESET 359</td>
<td>Electronic Instrumentation 1</td>
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<td>ESET 419 or MMET 429</td>
<td>Engineering Technology Capstone I 1 or Managing People and Projects in a Technological Society</td>
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<td>MMET 363</td>
<td>Mechanical Design Applications 1 1</td>
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<td>RDNG 465</td>
<td>Reading in the Middle and Secondary Grades 1,6</td>
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<td>TEFB 324</td>
<td>Teaching Skills II 1,6</td>
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<td><strong>Semester Credit Hours</strong></td>
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<tr>
<td>Summer</td>
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<tr>
<td>Fourth Year</td>
<td>EDCI 358</td>
<td>Instructional Methods in Engineering and Technology Education 1,6</td>
<td>3</td>
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<tr>
<td></td>
<td>ESET 420 or MMET 422</td>
<td>Engineering Technology Capstone II 1 or Manufacturing Technology Projects</td>
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<tr>
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<td>TEFB 406 or TEFB 407</td>
<td>Science in the Middle and Secondary School 1,6 or Mathematics in the Middle and Senior School</td>
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<td>Select one of the following:</td>
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<tr>
<td></td>
<td>COMM 203</td>
<td>Public Speaking</td>
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<td></td>
<td>COMM 205</td>
<td>Communication for Technical Professions</td>
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<td>ENGL 210</td>
<td>Technical and Professional Writing</td>
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<tr>
<td>Spring</td>
<td>MEFB 497</td>
<td>Supervised Clinical Teaching 1,6</td>
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<td><strong>Semester Credit Hours</strong></td>
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</tbody>
</table>

**Total Semester Credit Hours 96**

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6 Meets the 29 hour STEM Education focus area requirements.

7 See a departmental advisor for a list of approved electives.

8 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 ETID advising office.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

**Total Program Hours 127**