INTERDISCIPLINARY ENGINEERING - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF PUBLIC HEALTH IN OCCUPATIONAL SAFETY AND HEALTH

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, petroleum engineering (Note: not all programs listed are offered in the undergraduate program), and students pursuing degrees in biological and agricultural engineering.

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>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>CHEM 107 General Chemistry for Engineering Students 1,4</td>
</tr>
<tr>
<td></td>
<td>CHEM 117 General Chemistry for Engineering Students Laboratory 1,4</td>
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<tr>
<td></td>
<td>ENGL 103 or ENGL 104 Introduction to Rhetoric and Composition 1</td>
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<td></td>
<td>ENGR 102 Engineering Lab I - Computation 1</td>
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<tr>
<td></td>
<td>MATH 151 Engineering Mathematics I 1,2</td>
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<td></td>
<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>
</tr>
</tbody>
</table>

| Semester Credit Hours | 3 |

| Spring | ENGR 216/PHYS 216 Experimental Physics and Engineering Lab II - Mechanics 1 |
|        | MATH 152 Engineering Mathematics II 1 |
|        | PHYS 206 Newtonian Mechanics for Engineering and Science 1 |
|        | University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3 |

| Semester Credit Hours | 3 |

Second Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>Fall</td>
<td>ENGR 217/PHYS 217 Experimental Physics and Engineering Lab III - Electricity and Magnetism 1</td>
</tr>
<tr>
<td></td>
<td>ITDE 201 Foundations of Interdisciplinary Engineering 1</td>
</tr>
<tr>
<td></td>
<td>MATH 251 or MATH 253 Engineering Mathematics III 1 or Engineering Mathematics III</td>
</tr>
<tr>
<td></td>
<td>PHYS 207 Electricity and Magnetism for Engineering and Science 1</td>
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<table>
<thead>
<tr>
<th>Select one of the following:</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>COMM 203 Public Speaking</td>
<td></td>
</tr>
<tr>
<td>COMM 205 Communication for Technical Professions</td>
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<tr>
<td>COMM 243 Argumentation and Debate</td>
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<tr>
<td>ENGL 203 Writing about Literature</td>
<td></td>
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<tr>
<td>ENGL 210 Technical and Professional Writing</td>
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</tbody>
</table>

| Technical electives 1,6 | 3 |

| Semester Credit Hours | 15 |

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.
### Spring

- **MATH 308** Differential Equations 1
  - Semester Credit Hours 3

- University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3
  - Semester Credit Hours 6

- Technical electives 1, 6
  - Semester Credit Hours 9

### Summer

- **ITDE 399** High Impact Experience for Interdisciplinary Engineers
  - Semester Credit Hours 0

### Third Year

#### Fall

- **ITDE 301** Interdisciplinary Engineering Experimentation 1
  - Semester Credit Hours 1

- Select one of the following:
  - **MATH 304** Linear Algebra 1
  - **MATH 311** Topics in Applied Mathematics I 1
  - **MATH 323** Linear Algebra 1
  - **MATH 401** Advanced Engineering Mathematics 1

- University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3
  - Semester Credit Hours 3

- Technical electives 1, 6
  - Semester Credit Hours 9

#### Spring

- **ITDE 302** Interdisciplinary Engineering Capstone Design I 1
  - Semester Credit Hours 3

- **SOPH 601** Thinking in Populations: The Public Health Mindset
  - Semester Credit Hours 2

- **SOPH 602** Investigation and Control: Acute Public Health Events
  - Semester Credit Hours 3

- **SOPH 603** Assessment and Intervention: Wicked Problems in Public Health
  - Semester Credit Hours 3

- **PHEO 618** Occupational Safety 8
  - Semester Credit Hours 3

- University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3
  - Semester Credit Hours 3

### Fourth Year

#### Fall

- **ITDE 401** Interdisciplinary Engineering Capstone Design II 1
  - Semester Credit Hours 3

- **SOPH 604** Framing and Persuasion: Public Health in the Public Sphere
  - Semester Credit Hours 1

- **PHEO 640** Industrial Hygiene 8
  - Semester Credit Hours 3

- Technical electives 1, 6
  - Semester Credit Hours 10

### Summer

- **PHEO 684** Practicum
  - Semester Credit Hours 3

### Fifth Year

#### Fall

- **PHEO 630** Environmental/Occupational Diseases
  - Semester Credit Hours 3

- **PHEO 678** Occupational Biomechanics 8
  - Semester Credit Hours 3

- **PHEO 682** Industrial and System Safety
  - Semester Credit Hours 3

- **PHEO Electives** 9
  - Semester Credit Hours 9

#### Spring

- **ITDE 499** Degree Plan Approval for ITDE
  - Semester Credit Hours 0

- **PHEO 645** Health and Safety at Hazardous Waste Sites
  - Semester Credit Hours 3

- **PHEO 655** Human Factors
  - Semester Credit Hours 3

- **PHEO 679** Ergonomics of the Upper Extremities 8
  - Semester Credit Hours 3

- **SOPH 680** Public Health Capstone
  - Semester Credit Hours 3

### Sixth Year

#### Fall

- **PHEO 630** Environmental/Occupational Diseases
  - Semester Credit Hours 3

- **PHEO 678** Occupational Biomechanics 8
  - Semester Credit Hours 3

- **PHEO Electives** 9
  - Semester Credit Hours 9

- **SOPH 680** Public Health Capstone
  - Semester Credit Hours 3

- **PHEO 645** Health and Safety at Hazardous Waste Sites
  - Semester Credit Hours 3

- **PHEO 655** Human Factors
  - Semester Credit Hours 3

- **PHEO 679** Ergonomics of the Upper Extremities 8
  - Semester Credit Hours 3

- **SOPH 680** Public Health Capstone
  - Semester Credit Hours 3

### Total Semester Credit Hours

- Total Semester Credit Hours 161

6 A total of 46 semester credit hours of technical electives are required.
7 Select from ASTR 314; ATMO 363; BIOL 111, BIOL 113; CHEM 222, CHEM 227, CHEM 310, CHEM 311, CHEM 315, CHEM 316, CHEM 318, CHEM 322; ECCB 205; GEOG 205; GEOL 101, GEOL 104; MARS 408, MARS 410; MATH 304, MATH 311, MATH 323, MATH 401; PHYS 222; RWFM 375; STAT 211, STAT 414.
8 Courses taken for credit for both the undergraduate and graduate degree for a combined total of 12 semester credit hours: PHEO 618, PHEO 640, PHEO 678, PHEO 679.
9 A total of 6 semester credit hours of PHEO electives are required. To be selected in consultation with PHEO advisor.

The combined program includes a total of 161 semester credit hours, which includes 12 semester credit hours applied both to the Bachelor of Science in Interdisciplinary Engineering and Master of Public Health in Occupational Safety and Health.

### Total Semester Credit Hours for Combination Program

161