ENVIRONMENTAL ENGINEERING - BS

The BS in Environmental Engineering degree coursework is specifically designed to educate students to solve environmental challenges facing public and environmental health, such as water treatment, waste management, and climate change. The degree offers a broad range of coursework in the natural sciences and engineering, providing a multidisciplinary approach that merges with engineering principles to solve emerging and existing environmental issues. The program is appropriate for those who wish to protect human health and welfare while minimizing the adverse effects of human activity on the environment.

This program is approved to be offered at the Texas A&M University at Galveston campus.

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 Credit Hours</th>
<th>Fall</th>
<th></th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107</td>
<td>General Chemistry for Engineering Students</td>
<td>3</td>
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<tr>
<td>CHEM 117</td>
<td>General Chemistry for Engineering Students Laboratory</td>
<td>1</td>
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<tr>
<td>ENGL 103/ENGL 104</td>
<td>Introduction to Rhetoric and Composition 1,4 or Composition and Rhetoric</td>
<td>3</td>
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<tr>
<td>ENGR 102</td>
<td>Engineering Lab I - Computation 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MATH 151</td>
<td>Engineering Mathematics 1 1,2</td>
<td>4</td>
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<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>) 1,4</td>
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<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>Spring</th>
<th></th>
<th>Semester Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGR 216/PHYS 216</td>
<td>Experimental Physics and Engineering Lab II - Mechanics 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MATH 152</td>
<td>Engineering Mathematics II 1</td>
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<tr>
<td>PHYS 206</td>
<td>Newtonian Mechanics for Engineering and Science 1</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>Second Year</th>
<th></th>
<th>Semester Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 113/ENGR 243</td>
<td>Essentials in Biology or Fundamentals of Ecology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CVEN 221</td>
<td>Engineering Mechanics: Statics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGR 217/PHYS 217</td>
<td>Experimental Physics and Engineering Lab III - Electricity and Magnetism</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>EVEN 201</td>
<td>Introduction to the Environmental Engineering Profession</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MATH 251</td>
<td>Engineering Mathematics III</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>STAT 211</td>
<td>Principles of Statistics I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity and Magnetism for Engineering and Science</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

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

Select one of the following:

<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>CHEM 120 Fundamentals of Chemistry II 1,4</th>
</tr>
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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>) 1,5</td>
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<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>15-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Semester Credit Hours</td>
<td>31-32</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 (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.
### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 302</td>
<td>Computer Applications in Engineering and Construction</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 301/ CVEN 301</td>
<td>Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 304/ CVEN 304</td>
<td>Environmental Engineering Lab</td>
<td>1</td>
</tr>
<tr>
<td>EVEN 311/ CVEN 311</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 308</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Earth Science

Select one of the following: 4

- ATMO 201 & ATMO 202: Weather and Climate and Weather and Climate Laboratory
- ATMO 210 & ATMO 202: Climate Change and Weather and Climate Laboratory
- GEOG 203 & GEOG 213: Planet Earth and Planet Earth Lab
- GEOL 104: Physical Geology
- OCNG 251 & OCNG 252: The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory
- SCSC 301: Soil Science

#### Semester Credit Hours

17

### Third Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAEN 320</td>
<td>Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 322</td>
<td>Civil Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 320</td>
<td>Principles of Environmental Engineering Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 339/ CVEN 339</td>
<td>Water Resources Engineering</td>
<td>3</td>
</tr>
<tr>
<td>University Core Curriculum (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">link</a>)</td>
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High Impact Experience 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVEN 399</td>
<td>Mid-Curriculum Professional Development</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Semester Credit Hours

15

#### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 205</td>
<td>Communication for Technical Professions or Technical and Professional Writing</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 402/ CVEN 402</td>
<td>Engineered Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 404</td>
<td>Environmental Unit Operations Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>EVEN 406</td>
<td>Environmental Protection and Public Health</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 413/ CVEN 413</td>
<td>Natural Environmental Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Engineering Science

Select one of the following: 3

- CHEN 204: Elementary Chemical Engineering
- CVEN 305: Mechanics of Materials
- ECEN 215: Principles of Electrical Engineering
- MEEN 222/ MSEN 222: Materials Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSEN 201</td>
<td>Fundamentals of Materials Science and Engineering</td>
<td>3</td>
</tr>
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</table>

#### Semester Credit Hours

16

### Fourth Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAEN 477</td>
<td>Air Pollution Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 423</td>
<td>Geomatics for Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EVEN 400</td>
<td>Design Problems in Environmental Engineering I 7</td>
<td>2</td>
</tr>
</tbody>
</table>

Environmental Engineering

Select two of the following: 6

- BAEN 465: Design of Biological Waste Treatment Systems
- BAEN 469: Water Quality Engineering
- EVEN 458/ CVEN 458: Hydraulic Engineering of Water Distribution Systems
- CVEN 465: Coastal Resilience
- EVEN 462/ CVEN 462: Engineering Hydrogeology
- EVEN 463/ CVEN 463: Engineering Hydrology
- EVEN 466: Sustainability and Life Cycle Analysis

University Core Curriculum ([link](http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/)) 3

#### Semester Credit Hours

17

#### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVEN 401</td>
<td>Design Problems in Environmental Engineering II</td>
<td>2</td>
</tr>
<tr>
<td>PHIL 482/ ENGR 482</td>
<td>Ethics and Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Environmental Engineering

Select one of the following: 3

- BAEN 465: Design of Biological Waste Treatment Systems
- BAEN 469: Water Quality Engineering
- CVEN 465: Coastal Resilience
- EVEN 458/ CVEN 458: Hydraulic Engineering of Water Distribution Systems
- EVEN 462/ CVEN 462: Engineering Hydrogeology
- EVEN 463/ CVEN 463: Engineering Hydrology
- EVEN 466: Sustainability and Life Cycle Analysis

University Core Curriculum ([link](http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/)) 3

Technical elective 8, 9

#### Semester Credit Hours

14

#### Total Semester Credit Hours

97

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 EVEN advising office.
All students must take at least two courses in their major that are designated as writing intensive (W) or communications intensive (C). EVEN 201 and EVEN 400 taken at Texas A&M satisfy this requirement. Other EVEN courses may be approved as W/C courses at a later date. A grade of C or better is required in these courses.


Up to 3 hours of EVEN 485 (https://catalog.tamu.edu/search/?P=CVEN%20485) or EVEN 491 (https://catalog.tamu.edu/search/?P=CVEN%20491) may be used. A proposal must be submitted to the undergraduate office and approved before credit can be awarded towards the degree.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

Total Program Hours 128