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

Fall		Semester Credit Hours
CHEM 107	General Chemistry for Engineering Students [1,4]	3
CHEM 117	General Chemistry for Engineering Students Laboratory [1,4]	1
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition [1] or Composition and Rhetoric	3
ENGR 102	Engineering Lab I - Computation [1]	2
MATH 151	Engineering Mathematics I [1,2]	4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**16**
Spring		
ENGR 216/ PHYS 216	Experimental Physics and Engineering Lab II - Mechanics [1]	2
MATH 152	Engineering Mathematics II [1]	4
PHYS 206	Newtonian Mechanics for Engineering and Science [1]	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Select one of the following:		3-4
CHEM 120	Fundamentals of Chemistry II [1,4]	
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3,5]		
	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/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.

Second Year

Fall		Semester Credit Hours
BIOL 113 or ECCB 205	Essentials in Biology or Fundamentals of Ecology	3
CVEN 221	Engineering Mechanics: Statics	3
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism	2
EVEN 201	Introduction to the Environmental Engineering Profession	1
MATH 251	Engineering Mathematics III	3
STAT 211	Principles of Statistics I	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
	Semester Credit Hours	**18**

Spring		
CVEN 302	Computer Applications in Engineering and Construction	3
EVEN 301/ CVEN 301	Environmental Engineering	3
EVEN 304/ CVEN 304	Environmental Engineering Lab	1
EVEN 311/ CVEN 311	Fluid Dynamics	3
MATH 308	Differential Equations	3
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		
BAEN 320	Engineering Thermodynamics	3
CVEN 322	Civil Engineering Systems	3
EVEN 320	Principles of Environmental Engineering Chemistry	3
EVEN 339/ CVEN 339	Water Resources Engineering	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
High Impact Experience [6]		
EVEN 399	Mid-Curriculum Professional Development	
	Semester Credit Hours	**15**
Spring		
COMM 205 or ENGL 210	Communication for Technical Professions or Technical and Professional Writing	3
EVEN 402/ CVEN 402	Engineered Environmental Systems	3
EVEN 404	Environmental Unit Operations Laboratory	1
EVEN 406	Environmental Protection and Public Health	3
EVEN 413/ CVEN 413	Natural Environmental Systems	3
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	
MSEN 201	Fundamentals of Materials Science and Engineering	
	Semester Credit Hours	**16**
Fourth Year		
Fall		
BAEN 477/ MEEN 477	Air Pollution Engineering	3
CVEN 423	Geomatics for Civil Engineering	3
EVEN 400	Design Problems in Environmental Engineering I [7]	2
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 (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**17**
Spring		
EVEN 401	Design Problems in Environmental Engineering II	2
PHIL 482	Ethics and Engineering	3
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 (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Technical elective [8, 9]		3
	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.

[7] 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.

[8] Select from ATMO 363, BAEN 464, BAEN 468, BESC 357, BESC 367, BESC 403, CVEN 306, CVEN 307, CVEN 315, CVEN 454, CVEN 455, ECCB 420, EVEN 485, EVEN 491, GEOG 410/OCNG 412, GEOG 467, OCEN 362, OCNG 350, SCSC 405, SENG 310.

[9] 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