OCEAN ENGINEERING - BS

The BS in Ocean Engineering degree emphasizes breadth across the various fields of ocean engineering field. Students take courses in all major sub-disciplines of ocean engineering with advanced electives allowing for deeper learning in focus areas. The degree is appropriate for any discipline of ocean engineering, with particular relevance for those interested in coastal works, off-shore energy (Oil & Gas and renewables), naval architecture, underwater robotics, and for those planning on further specialization in graduate studies. This degree program is offered on College Station and Galveston campuses.

For more information please see https://engineering.tamu.edu/ocean/index.html (https://engineering.tamu.edu/ocean/)

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
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism	2
MATH 251	Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
OCEN 201	Introduction to Ocean Engineering	3
OCEN 221	Engineering Mechanics - Statics	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**17**
Spring		
ENGL 210	Technical and Professional Writing	3

MATH 308	Differential Equations	3
MEEN 315 or ECEN 215	Principles of Thermodynamics or Principles of Electrical Engineering	3
OCEN 213	Principles of Materials Engineering	3
OCEN 214	Mechanics of Deformable Bodies	3
STAT 211	Principles of Statistics I	3
	Semester Credit Hours	**18**
Third Year		
Fall		
OCEN 311	Fluid Statics and Dynamics	3
OCEN 336	Fluid Dynamics Laboratory	1
OCEN 351	Rigid Body Dynamics For Ocean Engineers	3
OCEN 361	Applied Numerical Methods	3
OCNG 310 or MARS 410	Physical Oceanography or Physical Oceanography	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**16**
Spring		
OCEN 265	Introduction to Geotechnical Engineering	3
OCEN 300	Ocean Engineering Wave Mechanics	3
OCEN 345	Theory of Ocean Engineering Structures	3
OCEN 352	Vibrations and Control for Ocean Engineers	3
OCEN 362	Hydromechanics	3
High Impact Experience [6]		0
OCEN 399	Leadership and Experience	
	Semester Credit Hours	**15**
Fourth Year		
Fall		
OCEN 400	Basic Coastal Engineering	3
OCEN 402	Principles of Naval Architecture	3
OCEN 403	Dynamics of Offshore Structures	3
OCEN 406	Capstone Design I	1
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Technical Elective I [7]		3
	Semester Credit Hours	**16**
Spring		
OCEN 407	Design of Ocean Engineering Facilities II [8]	3
OCEN 410	Ocean Engineering Laboratory [8]	2
OCEN 451	Robotic Marine Vehicles for Ocean Engineers	3
OCEN 481	Seminar	1
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Technical elective II [7]		3
	Semester Credit Hours	**15**
	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 OCEN advising office.

[7] This technical elective must be approved by the department head or the undergraduate advisor. Technical electives are chosen from the approved technical elective list.

[8] All students must take at least two courses in their major that are designated as writing intensive (W). OCEN 407 and OCEN 410 taken at Texas A&M satisfy this requirement.

A grade of C or better is required in all required mathematics (MATH) and ocean engineering (OCEN) courses taken to satisfy degree requirements.

Total Program Hours 128