ARCHITECTURAL ENGINEERING - BS, MECHANICAL SYSTEMS FOR BUILDINGS TRACK

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, 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 DAEN and 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
AREN 200	Architectural Engineering Foundations [1,6]	2
AREN 210	Fundamentals of Building Information Modeling for Architectural Engineering [1]	3
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism [1]	2
MATH 251 or MATH 253	Engineering Mathematics III [1] or Engineering Mathematics III	3
MEEN 221	Statics and Particle Dynamics [1]	3
PHYS 207	Electricity and Magnetism for Engineering and Science [1]	3
	Semester Credit Hours	**16**
Spring		
AREN 300	Architectural Engineering Systems [1]	3
CVEN 305	Mechanics of Materials [1]	3
MATH 308	Differential Equations [1]	3
MEEN 315	Principles of Thermodynamics [1]	3
Select one of the following:		3
COMM 203	Public Speaking	

COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
Select one of the following: [7]		3
ARCH 249	Survey of World Architecture History I	
ARCH 250	Survey of World Architecture History II	
ARCH 350	History and Theory of Modern and Contemporary Architecture	
	Semester Credit Hours	**18**
Summer		
High Impact Experience [8]		
AREN 399	High Impact Experience for Architectural Engineers	
	Semester Credit Hours	**0**
Third Year		
Fall		
AREN 320	Lighting Engineering for Buildings [1]	3
CVEN 302	Computer Applications in Engineering and Construction [1]	3
CVEN 345	Theory of Structures [1]	3
ECEN 215	Principles of Electrical Engineering [1]	3
MEEN 344	Fluid Mechanics [1]	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**18**
Spring		
AREN 330	Mechanical Systems for Buildings [1]	3
AREN 430	Hygrothermal Analysis of Building Envelopes [1]	3
COSC 333	Project Management for Facility Managers [1]	3
MEEN 461	Heat Transfer [1]	3
MSEN 222/ MEEN 222	Materials Science [1]	3
	Semester Credit Hours	**15**
Fourth Year		
Fall		
AREN 401	Architectural Engineering Design I [1,6]	3
AREN 440	Architectural Engineering Heating, Ventilating and Air Conditioning Design [1]	3
CVEN 446	Structural Steel Design	3
Technical elective I [1,9]		3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**15**
Spring		
AREN 402	Architectural Engineering Design II [1]	3
Technical elective II [1,10]		3
Technical elective III [1,10]		3
Math/Science elective [1,11]		3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**15**
	Total Semester Credit Hours	**97**

6 All students must take at least two courses in their major that are designated as writing intensive (W) or one writing intensive and one communications intensive (C) course. AREN 200 and AREN 401 taken at Texas A&M University satisfy this requirement. A grade of C or better is required in these courses.

7 The three available architectural history electives all satisfy the University Core Curriculum requirements for creative arts and international and cultural diversity.

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 AREN advising office.

9 Select from ARCH 328, ARCH 335, ARCH 421, COSC 253, COSC 325, COSC 326, COSC 461, CVEN 306, CVEN 342 or CVEN 343, CVEN 363, CVEN 444, CVEN 445, S

10 Select from BAEN 477/ MEEN 477, CVEN 306, CVEN 342 or CVEN 343, CVEN 363, CVEN 444, CVEN 445, I MEEN 439, MEEN 469, MEEN 477/BAEN 477, SENG 422.

11 Select from ATMO 363, BIOL 111, BIOL 113, CHEM 222, ECCB 205, GEOG 205, GEOL 101, GEOL 104, MATH 304, MATH 311, MATH 423, MATH 401, PHYS 222, RWFM 375, STAT 211, STAT 414.

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

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

Total Program Hours 128