MULTIDISCIPLINARY ENGINEERING TECHNOLOGY - BS, MECHATRONICS TRACK

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 [1]	2
ESET 210	Circuit Analysis [1]	4
ESET 219	Digital Electronics [1]	4
MMET 207	Metallic Materials [1]	3
PHYS 207	Electricity and Magnetism for Engineering and Science [1]	3
	Semester Credit Hours	**16**
Spring		
ESET 269	Embedded Systems Development in C [1]	3
ESET 350	Analog Electronics [1]	4
MMET 275	Mechanics for Technologists [1]	3
MMET 376	Strength of Materials [1,6]	4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**17**

Third Year		
Fall		
ESET 349	Microcontroller Architecture [1,6]	4
MMET 303	Fluid Mechanics and Power [1,6]	4
MMET 361	Product Design and Solid Modeling [1,6]	3
MXET 375	Applied Dynamic Systems [1]	3
Math elective [1,7]		3
	Semester Credit Hours	**17**
Spring		
ENTC 399	High Impact Experience [8]	0
ESET 359	Electronic Instrumentation [1]	4
ESET 369	Embedded Systems Software [1,6]	4
MMET 363	Mechanical Design Applications I [1]	3
MMET 370	Thermodynamics for Technologists [1]	4
MXET 300	Mechatronics I – Mobile Robotic Systems [1,6]	3
	Semester Credit Hours	**18**
Fourth Year		
Fall		
ESET 419 or MMET 429	Engineering Technology Capstone I [1] or Managing People and Projects in a Technological Society	3
ESET 462	Control Systems [1,6]	4
MXET 400	Mechatronics II – Industrial Robotic Systems [1,6]	3
Technical elective [1,7]		2
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**15**
Spring		
ESET 420 or MMET 422	Engineering Technology Capstone II [1] or Manufacturing Technology Projects	2
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 210	Technical and Professional Writing	
Technical elective [1,7]		2
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**13**
	Total Semester Credit Hours	**96**

[6] Meets the 29 hour Mechatronics focus area requirements.

[7] See a departmental advisor for a list of approved electives.

[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 ETID advising office.

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

Total Program Hours 127