INTERDISCIPLINARY ENGINEERING - BS

Earning a Bachelor of Science (BS) degree in interdisciplinary engineering (ITDE) allows students to develop unique skill sets and specialize in areas that may not be provided in a traditional department degree program. Such specializations may be driven by emerging technical fields or by a student's desire to have an immersive interdisciplinary experience. ITDE students graduate with a specific set of skills resulting from a unique program of study.

In addition to the coursework students must take, remaining credits of specialization may either be determined through a pre-approved program of study or through a student-led design with approval from the ITDE Advisory Committee.

Many students enhance their education by participating in cooperative education and/or professional internships, which offer opportunities for employment in engineering positions while working toward a degree. Numerous study abroad programs are also available for gaining experience and perspectives in the international arena. Participation in student chapters of professional and honor societies provides leadership opportunities, collegial activities, and learning experiences outside the classroom. Many students also participate in research projects through individual directed studies courses with a professor.

Before commencing course work in the major, students must be admitted to the major or have the approval of the degree program.

The BS in ITDE degree is offered at the College Station, Galveston, and McAllen campuses. The program has not undergone ABET accreditation review at the 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**
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism [1]	2
ITDE 201	Foundations of Interdisciplinary Engineering [1]	1
MATH 251 or MATH 253	Engineering Mathematics III [1] or Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science [1]	3
Technical elective [1, 6]		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	
	Semester Credit Hours	**15**
Spring		
MATH 308	Differential Equations [1]	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		6
Technical electives [1, 6]		9
	Semester Credit Hours	**18**
Summer		
ITDE 399	High Impact Experience for Interdisciplinary Engineers	0
	Semester Credit Hours	**0**
Third Year		
Fall		
ITDE 301	Interdisciplinary Engineering Experimentation [1]	1
Select one of the following:		3
MATH 304	Linear Algebra [1]	
MATH 311	Topics in Applied Mathematics I [1]	
MATH 323	Linear Algebra [1]	
MATH 401	Advanced Engineering Mathematics [1]	
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Technical electives [1, 6]		9
	Semester Credit Hours	**16**
Spring		
Math/Science elective [1, 7]		3
Technical electives [1, 6]		15
	Semester Credit Hours	**18**
Fourth Year		
Fall		
ITDE 401	Interdisciplinary Engineering Capstone Design I [1]	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Technical electives [1, 6]		9
	Semester Credit Hours	**15**
Spring		
ITDE 402	Interdisciplinary Engineering Capstone Design II [1]	2
ITDE 499	Degree Plan Approval for ITDE	0
Technical electives [1, 6]		13
	Semester Credit Hours	**15**
	Total Semester Credit Hours	**97**

[6] A total of 58 semester credit hours of technical electives are required. Courses to be selected with consultation with ITDE advisor.

[7] Select from the following courses: ASTR 314; ATMO 363; BIOL 111, BIOL 113; CHEM 222, CHEM 227, CHEM 310, CHEM 311, CHEM 315, CHEM 316, CHEM 318, CHEM 322; ECCB 205, GEOG 205, GEOL 101, GEOL 104; MARS 408, MARS 410; MATH 304, MATH 311, MATH 323, MATH 401; OCNG 310; PHYS 222; RWFM 375; STAT 211, STAT 414.

Total Program Hours 128