INDUSTRIAL ENGINEERING - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF PUBLIC HEALTH IN OCCUPATIONAL SAFETY AND HEALTH

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
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
MMET 181	Manufacturing and Assembly Processes I [1]	3
PHYS 207	Electricity and Magnetism for Engineering and Science [1]	3
STAT 211	Principles of Statistics I [1]	3
Select one of the following: [1]		4
CSCE 110	Programming I	
CSCE 111	Introduction to Computer Science Concepts and Programming	
CSCE 120	Program Design and Concepts	
CSCE 206	Structured Programming in C	
	Semester Credit Hours	**18**

Spring		
ISEN 210	Deterministic Optimization Modeling and Design [1]	2
ISEN 230	Informatics for Industrial Engineers [1]	3
ISEN 302	Economic Analysis of Engineering Projects [1]	2
ISEN 310	Uncertainty Modeling for Industrial Engineering [1]	3
MATH 304	Linear Algebra [1]	3
MEEN 221	Statics and Particle Dynamics	3
Select one of the following:		3
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
	Semester Credit Hours	**19**
Third Year		
Fall		
ISEN 320	Operations Research I [1]	3
ISEN 330	Human Systems Interaction [1]	3
MATH 308	Differential Equations [1]	3
MSEN 222/ MEEN 222	Materials Science	3
Select one of the following:		3
BAEN 320	Engineering Thermodynamics	
ECEN 215	Principles of Electrical Engineering	
MEEN 315	Principles of Thermodynamics	
	Semester Credit Hours	**15**
Spring		
ISEN 340	Operations Research II [1]	3
ISEN 350	Quality Engineering [1]	3
ISEN 355	System Simulation [1]	3
ISEN 370	Production Systems Engineering [1]	3
High Impact Experience [7]		0
ISEN 399	Professional Development	
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		6
	Semester Credit Hours	**18**
Fourth Year		
Fall		
PHEO 618	Occupational Safety [6]	3
SOPH 601	Health Behavior	3
SOPH 602	Health Policy and Management	3
SOPH 603	Epidemiology	3
Technical elective [1]		6
	Semester Credit Hours	**18**
Spring		
ISEN 460	Capstone Senior Design [1]	3
PHEO 640	Industrial Hygiene [6]	3
PHEO 678	Occupational Biomechanics [6]	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**12**
Summer		
PHEO 684	Practicum	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**6**
Fifth Year		
Fall		
ISEN 630 or ISEN 631	Human Operator in Complex Systems or Cognitive Systems Engineering	3
PHEB 602	Biostatistics I	3
PHEO 630	Environmental/Occupational Diseases	3
PHEO 682	Industrial and System Safety	3
	Semester Credit Hours	**12**
Spring		
PHEO 655	Human Factors	3
PHEO 679	Ergonomics of the Upper Extremities [6]	3
SOPH 680	Public Health Capstone	3
Select one of the following:		3
PHEO 645	Health and Safety at Hazardous Waste Sites	
ISEN/PHEO elective [8]		
	Semester Credit Hours	**12**
	Total Semester Credit Hours	**130**

[6] Courses taken for credit in both the undergraduate and graduate degree for a combined total of 12 hours: PHEO 618, PHEO 640, PHEO 678, PHEO 679.

[7] 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 INEN advising office.

[8] ISEN/PHEO electives are approved by the BS/MPH program director and graduate advisor. ISEN electives must be taken for a grade of C or better.

The program includes a total of 173 hours which up to 12 hours may be applied toward both the Bachelor of Science in Industrial Engineering and the Master of Public Health in Occupational Safety and Health.

Total Program Hours 173