NUCLEAR ENGINEERING - BS

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	2
MATH 251	Engineering Mathematics III	3
MEEN 221	Statics and Particle Dynamics	3
NUEN 101	Principles of Nuclear Engineering	1
NUEN 201	Introduction to Nuclear Engineering I	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
	Semester Credit Hours	**18**
Spring		
ECEN 215	Principles of Electrical Engineering	3
MATH 308	Differential Equations	3
NUEN 265	Materials Science for Nuclear Energy Applications	3
MEEN 315 or NUEN 315	Principles of Thermodynamics or Thermodynamics in Nuclear Systems	3
NUEN 302	Introduction to Nuclear Engineering II	3
High Impact Experience [6]		0
NUEN 102	Nuclear Engineering Practice	
	Semester Credit Hours	**15**

Third Year		
Fall		
MATH 309	Linear Algebra for Differential Equations [1]	3
MEEN 344	Fluid Mechanics	3
NUEN 301	Nuclear Reactor Theory	3
NUEN 309	Radiological Safety	3
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
ENGL 203	Writing about Literature	
ENGL 210	Technical and Professional Writing	
	Semester Credit Hours	**15**
Spring		
ISEN 302	Economic Analysis of Engineering Projects	2
MEEN 461	Heat Transfer	3
NUEN 303	Radiation Detection and Isotope Technology Laboratory	3
NUEN 304	Nuclear Reactor Analysis	3
NUEN 329 or MATH 417	Analytical and Numerical Methods or Numerical Methods	3
	Semester Credit Hours	**14**
Fourth Year		
Fall		
NUEN 405	Nuclear Engineering Experiments	3
NUEN 406	Nuclear Engineering Systems and Design	3
Select one of the following:		3
NUEN 418	Fuel Assembly and 3-D Reactor Core Design and Modeling	
NUEN 430	Computer Applications in Nuclear Engineering	
NUEN 460	Nuclear Plant Systems and Transients	
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Technical elective [7]		3
	Semester Credit Hours	**15**
Spring		
NUEN 410	The Design of Nuclear Reactors	4
NUEN 481	Seminar	1
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		6
NUEN Technical elective (http://catalog.tamu.edu/undergraduate/course-descriptions/nuen/) [7]		3
Technical elective [7]		3
	Semester Credit Hours	**17**
	Total Semester Credit Hours	**94**

[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 NUEN advising office.

[7] As approved by departmental advisor.

Total Program Hours 125