

MECHANICAL ENGINEERING - BS

Mechanical engineering (MEEN) at Texas A&M at Qatar challenges students and helps them to develop their full creative potential. Texas A&M at Qatar's program consists of three main areas: thermal-fluid sciences, systems and controls, and mechanics and materials. The courses taken in these areas enable students to develop the technical tools and skills required for enhancing design development. The education is broad and supports students being able to choose a variety of employment or further study opportunities.

Texas A&M at Qatar received ABET accreditation in the fall of 2008. According to ABET, an engineering education accreditation organization, mechanical engineers apply principles of engineering, basic science and mathematics to model, analyze, design and realize physical systems, components or processes and work professionally in both thermal and mechanical systems. Mechanical engineering is a diversified profession because all industries, including oil and gas industries, chemical industries, and built environment, need mechanical engineers for designing, maintaining, testing and managing operations. In addition to industry, mechanical engineers may work for governmental and consulting organizations, and mechanical engineers may continue their studies and earn graduate degrees in MEEN or other disciplines.

For more information, visit the Mechanical Engineering Program's website at <https://www.qatar.tamu.edu/programs/mechanical-engineering/>.

Program Requirements

The freshman year is identical for degrees in electrical engineering, mechanical engineering, and petroleum engineering. The freshman year is slightly different for chemical engineering in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. 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 & CHEM 117	General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory ^{1,2}	4
ENGL 104	Composition and Rhetoric ¹	3
ENGR 102	Engineering Lab I - Computation ¹	2
MATH 151	Engineering Mathematics I ^{1,3}	4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ⁴		3
Semester Credit Hours		16
Spring		Semester Credit Hours
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics ¹	2
MATH 152	Engineering Mathematics II ^{1,3}	4

PHYS 206	Newtonian Mechanics for Engineering and Science ¹	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ⁴		6
Semester Credit Hours		15
Total Semester Credit Hours		31

¹ A grade of C or better is required.

² CHEN requires 8 hours of freshman chemistry, which may be satisfied by CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Credit by Examination (CBE) for CHEM 119 or CHEM 107/CHEM 117 plus CHEM 120.

³ 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.

⁴ Of the 21 hours shown as University Core Curriculum electives, 3 must be from language, philosophy and culture, 3 must be from creative arts, 3 from social and behavioral sciences, 6 from American history, and 6 from government/political science. The required 3 hours from international and cultural diversity and 3 hours from cultural discourse may be met by courses satisfying the language, philosophy and culture, creative arts, social and behavioral sciences, and American history requirements if they are also on the approved list of international and cultural diversity or cultural discourse courses.

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
MEEN 210	Geometric Modeling for Mechanical Design ¹	2
MEEN 225	Engineering Mechanics ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science ¹	3
STAT 211	Principles of Statistics I ¹	3
Semester Credit Hours		16
Spring		Semester Credit Hours
ECEN 215 or ECEN 214	Principles of Electrical Engineering ¹ or Electrical Circuit Theory	3
ENGL 210	Technical and Professional Writing	3
MATH 308	Differential Equations ¹	3
MEEN 223	Principles of Materials and Manufacturing ¹	2
MEEN 260	Mechanical Measurements ¹	3
MEEN 315	Principles of Thermodynamics ¹	3
Semester Credit Hours		17
Summer		Semester Credit Hours
High Impact Experience ⁵		0
MEEN 399	High Impact Experience for Mechanical Engineers	0
Semester Credit Hours		0

Total Program Hours 128

Third Year**Fall**

MEEN 305	Solid Mechanics ¹	3
MEEN 344	Fluid Mechanics ¹	3
MEEN 345	Fluid Mechanics Laboratory ¹	1
MEEN 357	Engineering Analysis for Mechanical Engineers ¹	3
MEEN 363	Dynamics and Vibrations ¹	3
MEEN 381	Seminar	1
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ⁴		3
Semester Credit Hours		17

Spring

MEEN 360	Materials and Manufacturing Selection in Design ¹	3
MEEN 361	Materials and Manufacturing in Design Laboratory ¹	1
MEEN 364	Dynamic Systems and Controls ¹	3
MEEN 365	Dynamic Systems and Controls Lab ¹	1
MEEN 368	Solid Mechanics in Mechanical Design ¹	3
MEEN 461	Heat Transfer ¹	3
MEEN 464	Heat Transfer Laboratory ¹	1
Semester Credit Hours		15

Fourth Year**Fall**

ISEN 302	Economic Analysis of Engineering Projects	2
MEEN 401	Introduction to Mechanical Engineering Design ¹	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ⁴		6
Technical Elective ⁶		6
Semester Credit Hours		17

Spring

MEEN 402	Intermediate Design	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ⁴		3
Technical elective ⁶		6
General elective ^{6,7}		3
Semester Credit Hours		15
Total Semester Credit Hours		97

⁵ 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 advising office.

⁶ See an academic advisor for a list of approved courses. Students must take at least three MEEN technical electives of which at least one course is from the Thermo-fluids Systems area; at least one from Data Science and Experimentation area; and at least one course is from Mechanical and Manufacturing Systems area.

⁷ Must be 300-499 level course.