

# PETROLEUM ENGINEERING - BS

Petroleum engineering is primarily concerned with the safe and economic extraction of oil, gas and other natural resources from the earth. This is accomplished through drilling, completions, and operation of wells while considering safety of personnel and the natural environment. The field of petroleum engineering also covers the management of subsurface reservoirs in which the resources are found.

Petroleum engineering graduates have a variety of careers in the upstream and midstream oil and gas industry open to them. They include working as geoscientists, petrophysicists, drilling engineers, reservoir engineers, or production engineers. Their activities include quantifying oil and gas reserves, well design, well performance evaluation, reservoir modeling, production optimization, and treatment planning.

Texas A&M at Qatar's petroleum engineering students are prepared for the workplace through participation in research on topics such as drilling and production challenges, multiphase flow in porous media, and petrophysics. Student participation in research further develops the human capital of Qatar. Fourth-year students also complete a senior design project in which they develop a detailed reservoir model, make a recommendation for optimized reservoir development, and present their findings to industry experts.

Petroleum engineering faculty members contribute to the local industry and community. They develop research projects that directly improve hydrocarbon recovery, production, and treatment from local Qatari reservoirs. In addition, they provide continuing education courses and expertise to local industry.

Visit the Petroleum Engineering Program's website at, <https://www.qatar.tamu.edu/programs/petroleum-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 <sup>1,2</sup>	4
ENGL 104	Composition and Rhetoric <sup>1</sup>	3
ENGR 102	Engineering Lab I - Computation <sup>1</sup>	2
MATH 151	Engineering Mathematics I <sup>1,3</sup>	4

University Core Curriculum (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>) <sup>1,4</sup> 3

Semester Credit Hours		16
<b>Spring</b>		
ENGR 216/PHYS 216	Experimental Physics and Engineering Lab II - Mechanics <sup>1</sup>	2
MATH 152	Engineering Mathematics II <sup>1,3</sup>	4
PHYS 206	Newtonian Mechanics for Engineering and Science <sup>1</sup>	3
University Core Curriculum ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a> ) <sup>1,4</sup>		6
Semester Credit Hours		15
Total Semester Credit Hours		31

<sup>1</sup> A grade of C or better is required.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> Of the 18 hours shown as University Core Curriculum electives, 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 of cultural discourse may be met by courses satisfying the 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
ENGL 210	Technical and Professional Writing <sup>1</sup>	3
ENGR 217/PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism <sup>1</sup>	2
MATH 251	Engineering Mathematics III <sup>1</sup>	3
MEEN 221	Statics and Particle Dynamics <sup>1</sup>	3
PETE 225	Introduction to Drilling Systems <sup>1</sup>	3
PHYS 207	Electricity and Magnetism for Engineering and Science <sup>1</sup>	3
Semester Credit Hours		17
<b>Spring</b>		
CVEN 305	Mechanics of Materials <sup>1</sup>	3
GEOL 104	Physical Geology <sup>1</sup>	4
MATH 308	Differential Equations <sup>1</sup>	3
PETE 311	Reservoir Petrophysics <sup>1</sup>	3
PETE 315	Petroleum Engineering Thermodynamics	3
Semester Credit Hours		16

### Third Year

Fall		
GEOL 404	Geology of Petroleum <sup>1</sup>	3

PETE 219	Foundations of Petroleum Data Analytics <sup>1</sup>	2
PETE 301	Petroleum Engineering Numerical Methods <sup>1</sup>	3
PETE 310	Reservoir Fluids <sup>1</sup>	3
PETE 314	Transport Processes in Petroleum Production <sup>1</sup>	3
PETE 353	Petroleum Project Evaluation <sup>1</sup>	3
<b>Semester Credit Hours</b>		<b>17</b>
<b>Spring</b>		
PETE 321	Formation Evaluation <sup>1</sup>	4
PETE 323	Fundamentals of Reservoir Engineering <sup>1</sup>	3
PETE 324	Well Testing <sup>1</sup>	3
PETE 325	Petroleum Production Systems <sup>1</sup>	3
PETE 336	Petroleum Technical Presentation I	1
PETE 337	Junior Student Paper Contest <sup>1</sup>	0
PETE 355	Drilling Engineering <sup>1</sup>	3
<b>Semester Credit Hours</b>		<b>17</b>
<b>Summer</b>		
PETE 300	Summer Practice <sup>1</sup>	0
<b>Semester Credit Hours</b>		<b>0</b>
<b>Fourth Year</b>		
<b>Fall</b>		
PETE 401	Reservoir Simulation <sup>1</sup>	2
PETE 404	Integrated Reservoir Modeling <sup>1</sup>	3
PETE 410	Production Engineering <sup>1</sup>	3
PETE 436	Petroleum Technical Presentation II <sup>1</sup>	1
University Core Curriculum ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a> ) <sup>1, 4</sup>		3
Technical elective <sup>1, 5</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Spring</b>		
ENGR 482/ PHIL 482	Ethics and Engineering <sup>1</sup>	3
PETE 402	Integrated Asset Development <sup>1</sup>	3
PETE 437	Senior Student Paper Contest <sup>1</sup>	0
University Core Curriculum ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a> ) <sup>1, 4</sup>		6
Technical elective <sup>1, 5</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Total Semester Credit Hours</b>		<b>97</b>

<sup>5</sup> See an academic advisor for a list of approved courses.

A grade of C or better is required in all courses.

**Total Program Hours 128**