

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 personal 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 ^{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 |

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| University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ^{1,4} | 3 |
|---|---|

| Semester Credit Hours | | 16 |
|---|--|-----------|
| Spring | | |
| ENGR 216/PHYS 216 | Experimental Physics and Engineering Lab II - Mechanics ¹ | 2 |
| MATH 152 | Engineering Mathematics II ^{1,3} | 4 |
| PHYS 206 | Newtonian Mechanics for Engineering and Science ¹ | 3 |
| University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ^{1,4} | 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 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 ¹ | 3 |
| ENGR 217/PHYS 217 | Experimental Physics and Engineering Lab III - Electricity and Magnetism ¹ | 2 |
| MATH 251 | Engineering Mathematics III ¹ | 3 |
| MEEN 221 | Statics and Particle Dynamics ¹ | 3 |
| PETE 225 | Introduction to Drilling Systems ¹ | 3 |
| PHYS 207 | Electricity and Magnetism for Engineering and Science ¹ | 3 |
| Semester Credit Hours | | 17 |

| | | |
|------------------------------|--------------------------------------|-----------|
| Spring | | |
| CVEN 305 | Mechanics of Materials ¹ | 3 |
| GEOL 104 | Physical Geology ¹ | 4 |
| MATH 308 | Differential Equations ¹ | 3 |
| PETE 311 | Reservoir Petrophysics ¹ | 3 |
| PETE 315 | Petroleum Engineering Thermodynamics | 3 |
| Semester Credit Hours | | 16 |

Third Year

| Fall | | |
|----------|-----------------------------------|---|
| GEOL 404 | Geology of Petroleum ¹ | 3 |

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

⁵ 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