PETROLEUM AND NATURAL GAS ENGINEERING, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The minor in Petroleum and Natural Gas Engineering is for students interested in the drilling and production of oil and gas. It provides an opportunity for students to understand and appreciate the relationship between petroleum and natural gas demand, production, and their environmental impact. Students are exposed to the basic courses in petroleum and natural gas extraction, particularly as they relate to drilling, production, and characterization. Advising is available through the professor in charge.

What is Petroleum and Natural Gas Engineering?

Petroleum and Natural Gas Engineering is a field of engineering related to the production of hydrocarbon resources, which can be either crude oil or natural gas. As such, petroleum and natural gas engineers predominantly work in the upstream sector of the oil and energy industries, which comprises exploration, field development, well drilling, and production well optimization activities. Once oil and gas are discovered, petroleum engineers determine optimum drilling methods, implement drilling and well completion plans, monitor and manage production operations, and design reservoir development strategies. Petroleum and natural gas engineers have the responsibility of providing engineering solutions that consider the impact in global, economic, environmental, and societal contexts. Petroleum and natural gas engineers work closely with geoscientists and other science and technology specialists. They are also well suited to solve complex problems in geothermal energy extraction, geological carbon sequestration, and environmental remediation of soil, groundwater, and other geologic media.

You Might Like This Program If...

- You want to use science and engineering principles to address the technological challenges of the petroleum and natural gas industry.
- You like traveling both within the U.S. and internationally, and working outside including in unique settings such as offshore rigs.
- You enjoy combining disciplines such as geology, physics, and math to solve problems, and using technical skills both in the office and in the field.

Program Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tr>
<td>Requirements for the Minor</td>
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Requirements for the Minor

A minimum of 23 credits is required for the minor.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10).

**Additional Courses**

**Prescribed Courses:** Require a grade of C or better

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PNG 405</td>
<td>Rock and Fluid Properties</td>
<td>3</td>
</tr>
<tr>
<td>PNG 406</td>
<td>Rock and Fluid Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PNG 410</td>
<td>Applied Reservoir Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PNG 440W</td>
<td>Formation Evaluation</td>
<td>3</td>
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**Additional Courses:** Require a grade of C or better

Select 9 credits of the following:

- PNG 411 Introduction to Petroleum and Natural Gas Extraction
- PNG 420 Applied Reservoir Analysis and Secondary Recovery
- PNG 425 Principles of Well Testing and Evaluation
- PNG 430 Reservoir Modeling
- PNG 450 Drilling Engineering
- PNG 451 Drilling Laboratory
- PNG 475 Production and Completions Engineering
- PNG 480 Surface Production Engineering
- PNG 482 Production Engineering Laboratory
- PNG 489
- PNG 496 Independent Studies

**Academic Advising**

The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee’s unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

**University Park**

Zuleima Karpyn
Program Chair for Petroleum and Natural Gas Engineering
151 Hosler Building
University Park, PA 16802
814-863-2273
ZKarpyn@psu.edu

**Contact**

University Park

JOHN AND WILLIE LEONE FAMILY DEPARTMENT OF ENERGY AND MINERAL ENGINEERING
113 Hosler Building
University Park, PA 16802
Petroleum and Natural Gas Engineering, Minor

814-865-3437
eme@ems.psu.edu
http://www.eme.psu.edu