

# 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 related to the extraction of hydrocarbon resources (either crude oil or natural gas) from subsurface reservoirs. 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, production and injection well optimization, and wastewater disposal and CO2 sequestration well planning. Once oil and gas are discovered, petroleum engineers determine optimum drilling and completion methods, monitor and manage production operations, and design reservoir development strategies. They have the responsibility of providing engineering solutions with global economic, environmental, geopolitical, and societal impacts. Petroleum and natural gas engineers work closely with geoscientists and other science and technology specialists. In addition to hydrocarbon extraction, they are also well-suited to solve complex problems in geothermal energy, geological carbon sequestration, wastewater disposal, and environmental remediation of soil, groundwater, and other geologic media.

### You Might Like This Program If...

- You enjoy combining disciplines such as geology, physics, and mathematics to solve complex problems of importance to society.
- You want to use science and engineering principles to tackle the challenges of global energy demands.
- You seek a profession that offers domestic and international networking opportunities.
- You enjoy working in the field, performing sophisticated computer simulations, or interpreting geologic and production data.

## Program Requirements

Requirement	Credits
Requirements for the Minor	23

### 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 (<https://senate.psu.edu/policies-and-rules->

[for-undergraduate-students/59-00-minors-and-certificates/#59-10](https://senate.psu.edu/policies-and-rules-)). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
PHYS 211	General Physics: Mechanics	4
PNG 405	Rock and Fluid Properties	3
PNG 406	Rock and Fluid Laboratory	1
PNG 410	Applied Reservoir Engineering	3
PNG 440W	Formation Evaluation	3
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better</i>		
Select 9 credits of the following:		9
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 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 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

### University Park

#### Gregory King

Program Chair for Petroleum and Natural Gas Engineering  
 123 Hosler Building  
 University Park, PA 16802  
 814-867-3547  
[grk17@psu.edu](mailto:grk17@psu.edu)

#### Molly Hanna

Academic Adviser  
 101 Hosler Building  
 University Park, PA 16802

814-865-8475  
mkn6@psu.edu

## **Contact**

### **University Park**

JOHN AND WILLIE LEONE FAMILY DEPARTMENT OF ENERGY AND  
MINERAL ENGINEERING  
113 Hosler Building  
University Park, PA 16802  
814-865-3437  
eme@ems.psu.edu

<https://www.eme.psu.edu>