

PETROLEUM AND NATURAL GAS ENGINEERING, BACHELOR OF SCIENCE (BS)

Curriculum Guide

GPA Requirement

Major GPA: 2.0 or higher

Overall GPA: 2.0 or higher

Summary*

Code	Title	Hours
	Rock Studies 2 Requirements	41
	Other Basic Requirements	0-3
	Computer Competency	0-3
	Major Requirements	84
	Natural Science and Math College-Wide Requirements	12
	Elective	3

* All undergraduate degree programs require a minimum of 120 credits.

Some courses meet multiple requirements, but are only counted once toward the 120 credit total required to graduate.

Rock Studies 2 Requirements

Code	Title	Hours
The Rock		
SUBJ 139	Foundations of Academic Discovery ¹	3
ENGL 102	Critical Writing	3
ENGL 104	Critical Reading	3
MATH 225	Calculus I	4
Select one of the following:		3
COMM 200	Civil Discourse: Theory & Practice	
PHIL 110	Ethics and Civil Discourse	
POLS 235	Civil Discourse and Democracy	
Subtotal		16

Integrated Inquiry

Creative and Aesthetic Inquiry

Select 3 Credits (<https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/>) 3

Humanities Inquiry

Select 3 Credits (<https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/>) 3

Social Science Inquiry

Select 3 Credits (<https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/>) 3

Natural Sciences Inquiry

CHEM 107 General Chemistry I 3

CHEM 111 General Chemistry I Lab 1

Physical Sciences Inquiry

PHYS 216 University Physics 1 with Lab 4

Subtotal 17

Additional Rock Studies 2 Requirements

Required Thematic Thread Coursework:

MATH 230	Calculus II	4
PHYS 217	University Physics 2 with Lab	4
Subtotal		8
Total Hours		41

¹ Course offered in multiple subjects; cannot take course in first major subject.

Basic Math Requirement

Check with your adviser or a current degree audit report to see if you have been exempted from this course. The credit earned in this course will not be counted toward the 120 credit hour minimum needed to earn a degree.

Code	Title	Hours
Complete one of the following:		0-3
Meet required minimum SAT or ACT math score OR		
ESAP 110	Beginning Algebra	
Total Hours		0-3

Computer Competency

Code	Title	Hours
Demonstrate "computer competency" by one of the following:		0-3
Pass Computer Competency Exam OR		
Select one of the following at SRU or another post-secondary institution:		
CPSC 100	Introduction to Computing for Liberal Arts	
CPSC 110	Computer Concepts	
CPSC 130	Introduction to Computing and Programming	
PE 202	Technology for Wellness	
Total Hours		0-3

DIVERSITY, EQUITY, AND INCLUSION REQUIREMENT

Students must take and pass a course with the Diversity, Equity, and Inclusion (DEI) designation prior to graduation. Students can meet this requirement by taking any DEI - designated course in any program at any time during their undergraduate career.

Major Requirements

- 42 major credits must be taken at SRU or PASSHE
- 42 major credits must be taken at the 300 level or above

Code	Title	Hours
Required Engineering Courses		
ENGR 110	Introduction to Engineering ¹	2
ENGR 120	Engineering Design Tools ¹	2
ENGR 130	Engineering Computing Tools	2
ENGR 210	Statics	3
ENGR 230	Mechanics of Materials	3
ENGR 301	Fluid Mechanics ¹	3
ENGR 320	Thermodynamics ¹	3
ENGR 340	Engineering Economics	3
PNGE 201	Introduction to Petroleum and Natural Gas Engineering ¹	1
PNGE 312	Petrophysics ¹	4

PNGE 315	Reservoir Fluids ¹	3
PNGE 325	Reservoir Engineering ¹	3
PNGE 410	Drilling engineering with Lab ¹	4
PNGE 420	Production Engineering ¹	3
PNGE 430	Reservoir Simulation ¹	3
PNGE 432	Formation Evaluation ¹	3
PNGE 435	Pressure Transient Analysis ¹	3
PNGE 440	Hydraulic Fracturing ¹	3
PNGE 441	Oil and Natural Gas Resource Valuation and Economics ¹	3
PNGE 459	Petroleum and Natural Gas Design/ Capstone I ¹	1
PNGE 460	Petroleum and Natural Gas Engineering Design/Capstone II ¹	2
Subtotal		57
PNGE Electives (PNGE or EGEO)		
Students must select two of the following courses, a minimum of six credits:		
PNGE 330	Unconventional Reservoir Engineering ¹	
PNGE 443	Enhanced Oil Recovery ¹	
PNGE 445	Natural Gas Engineering with Lab ¹	
PNGE 470	Petroleum and Natural Gas Engineering Undergraduate Research ¹	
EGEO 358	Introduction to Geophysics/Lab ¹	
Subtotal		6
Required Math and Science Courses		
CHEM 108	General Chemistry II ¹	3
CHEM 112	General Chemistry II Lab ¹	1
EGEO 201	Earth Materials and Processes/Lab ¹	4
EGEO 327	Structural Geology ¹	4
MATH 232	Linear Algebra ¹	3
MATH 301	Differential Equations I ¹	3
STAT 350	Applied Statistics	3
Subtotal		21
Total Hours		84

¹ Course counts for 50% of Major requirements and Major GPA

² Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.

* Some courses may require pre-requisites. Please see course descriptions to determine if there are any pre-requisites for that specific course.

Natural Science and Math College-Wide Requirements

Code	Title	Hours
CHEM 107	General Chemistry I ¹	3
CHEM 111	General Chemistry I Lab ¹	1
MATH 225	Calculus I ¹	4
PHYS 216	University Physics 1 with Lab ¹	4
Total Hours		12

¹ Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.

Important Curriculum Guide Notes

This Curriculum Guide is provided to help SRU students and prospective students better understand their intended major curriculum. Enrolled SRU students should note that the My Rock Audit may place already-earned and/or in progress courses in different, yet valid, curriculum categories. Enrolled SRU students should use the My Rock Audit Report and materials and information provided by their faculty advisers to ensure accurate progress towards degree completion. *The information on this guide is current as of the date listed. Students are responsible for curriculum requirements at the time of enrollment at the University.*

PASSHE - Pennsylvania State System of Higher Education Institutions

PETROLEUM AND NATURAL GAS ENGINEERING - BS (6180)

This program is effective as of Summer 2021

Revised 3.31.2022

UCC 10.26.2021