



# PETROLEUM ENGINEERING

Our modern world requires access to the earth's subsurface for many reasons – to produce hydrocarbons for fuels and materials, to reduce greenhouse gas emissions by sequestering carbon dioxide, or to tap into geothermal energy. Petroleum engineers learn how to apply science and engineering principles to design these complex systems.

## What Do Petroleum Engineers Do?

Petroleum engineers design and manage drilling, production, and injection operations around the world. Their work may take place in the Arctic, jungles, oceans, or across the Continental U.S. While it often involves production of oil or natural gas, the ongoing energy transition means that the role of petroleum engineers is expanding to include subsurface CO<sub>2</sub> sequestration, solution mining of valuable minerals, accessing geothermal energy, or creating subsurface reservoirs for hydrogen storage.

Petroleum engineers combine fundamentals of math, physics, and geology along with modern engineering principles, and it's this combination of disciplines that sets petroleum engineers apart from other engineers.

LSU graduates are known for being well trained to address the real-world challenges that come with designing complex subsurface

systems. They learn from world-class faculty members who average more than seven years industry experience. The curriculum includes a new sequence in modern data sciences, and provides the unique opportunity to obtain a concentration in carbon capture, utilization, and storage (CCUS).

## PERTT Lab

The Petroleum Engineering Research Training & Testing Laboratory (PERTT Lab) is a one-of-a-kind facility with six wellbores and the necessary industrial equipment to operate them in a controlled field-scale laboratory. All petroleum engineering students take a laboratory on well control at the PERTT Lab, allowing them to test their mastery on real equipment once they have trained on computer simulators. LSU students can also apply to the PERTT Lab's Student Internship Program, to earn extra money while building the practical skills that can be gained only through hands-on experience in this type of environment.

### PROGRAM FACTS

**2020–2021 Enrollment:** 251 Students

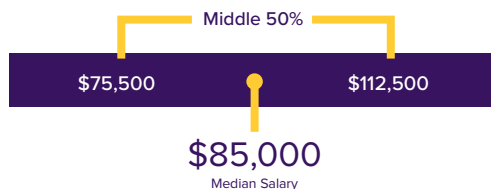
**Common Minors:** Geology, Business Administration, Technical Sales

#### Student Organizations:

SPE—Society of Petroleum Engineers  
AADE—American Association of Drilling Engineers  
ARMA—American Rock Mechanics Association

### GRADUATE STARTING SALARIES

Median full-time salary info for LSU graduates in May 2022



**Undergraduate Advisor:**  
**Fred Thurber, Instructor**  
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### CAREER OPTIONS

Reservoir Engineer  
Drilling Engineer  
Natural Gas Engineer  
Production Engineer  
CCUS Engineer  
Natural Gas Engineer  
Well Log Analyst

# Petroleum Engineering CURRICULUM OVERVIEW

YEAR 1	YEAR 2	YEAR 3	YEAR 4	LEGEND
Introduction to Petroleum ENGR	Reservoir Rock Properties	Reservoir Dynamics	Senior Project I	Major-specific Engineering
Physics I: Particle Mechanics	Reservoir Fluid Properties	Drilling Engineering	Senior Project II	Other Engineering
General Chemistry I	Statistics and Data Visualization for Petroleum Engineers	Petroleum Field Operations	Reserve Estimation and Reservoir Management	Science
General Chemistry II	Economic Aspects of Petroleum Production	Computational Methods and Data Analytics in Petroleum Engineering	Prevention of Oil and Gas Well Blowouts	Math
General Chemistry Lab	Well Logging	Petroleum ENGR Aspects of Subsurface Geology	Drilling Fluids Lab	General Education
General Geology: Physical	Statics	Well Performance and Production	Reservoir Mechanics Lab	
Physical Geology Lab	Fluid Mechanics	Rock and Fluid Properties Lab	Petroleum ENGR Design	
Calculus I	Physics II: Fluids, Thermodynamics, Waves, and Modern Physics	Thermodynamics	Petroleum ENGR Design	
Calculus II	Physics III: Fields: Gravity, Electricity, and Magnetism	Mechanics of Materials (Strengths)	Petroleum ENGR Design	
General Ed: English Comp I	Elementary Differential Equations	Geology Elective	Technical Elective	
General Ed: Life Science	Economic Principles	General Ed: English Comp II	General Ed: Social Sciences	
		General Ed: Arts	General Ed: Humanities	
			General Ed: Humanities	
			General Ed: Humanities	