

SUBSURFACE ENERGY 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 Subsurface Energy Engineering offers a curriculum focused on energy and subsurface systems for sustainable and cleaner energy. Students learn basic subsurface energy extraction, subsurface characterization, fluid and rock physics, and reservoir analysis for energy production and storage. They develop strategies for efficient energy use and gain theoretical knowledge and practical skills, preparing them to address current and future energy challenges with an emphasis on sustainability and safety.

The prescribed courses for this minor have a prerequisite of MATH 140 and a concurrent course: EME 303, which itself has prerequisites of (MATH 250 or MATH 251) and PHYS 211. Note that MATH 141 is a prerequisite for MATH 250 and for MATH 251. Other prerequisites may be needed depending on which additional courses are chosen.

What is Subsurface Energy Engineering?

Meeting current and future energy challenges requires significant advances to ensure safe, sustainable, and affordable access to natural resources and storage in the subsurface. Subsurface Energy Engineering is focused on designing, implementing, and managing solutions for subsurface energy production and storage. This includes geological carbon storage, geothermal energy, soil remediation, hydrocarbon recovery, carbon capture and storage, and groundwater resources. Subsurface energy engineers tackle crucial problems related to energy – one of society's most important resources. They primarily work in the upstream sector of the petroleum and energy industries, which encompasses exploration, field development, well drilling, production, and injection well optimization. These engineers determine the best drilling and completion methods, monitor and manage production operations, and devise reservoir development strategies. Their work has significant global economic, environmental, geopolitical, and societal impacts. Subsurface energy engineers are also adept at solving complex challenges in geothermal energy, geological carbon sequestration, hydrogen and energy storage, wastewater disposal, and environmental remediation of soil, groundwater, and other geological media.

You Might Like This Program If...

- You enjoy combining disciplines such as geology, chemistry, 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.