ENGY 125 INTRODUCTION TO OIL AND GAS INDUSTRY

3 CREDITS

SYLLABUS

CATALOG DESCRIPTION

Students will study producing natural gas and oil, from how gas and oil are formed and the geologic formations in which they are found, exploring, drilling and completing the well location to the sale of the product to include: typical geology, how gas and oil are found, the drilling technique, the wellhead, casing and tubing, completion of the well and the surface equipment required with an emphasis on natural gas compression.

Prerequisites:
None

Semester Offered: All

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in…

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies, information, or resources in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Assessment website (www.sanjuancollege.edu/assessment).

Course Learning Outcomes

Upon successful completion of the course, the student will be able to…

1. Understand the basic steps in producing oil and gas.
2. Understand how hydrocarbons are formed.
3. Identify the geologic formations in which gas and oil are found.
4. Explain the difference between porosity and permeability of a formation.
5. Understand how gas and oil are found.
6. Explain the difference in a wildcat and a development well.
7. Understand the function of the casing and why it is cemented.
8. Understand the function and importance of the wellhead.
9. Explain how a well is completed using perforating and fracking.
10. Identify the economic and environmental concerns to drilling and completing.
11. Identify the surface equipment used on a typical well location.
12. Explain the 3 principles that make a separator work.

13. Identify what a dehydrator uses to remove water from the gas stream.
14. Name the different applications for natural gas compressors.
15. Identify the components of a compressor skid.
16. Identify how a natural gas compressor works.
17. Name the types of drivers used on a compressor skid.
18. Understand the difference between a 2 stroke and 4 stroke internal combustion engine.
19. Identify the advantage of using an internal combustion engine over an electric driver.
20. Name the reasons a wellhead compressor should be used.
21. Explain why gas is compressed.
22. Identify the common types of wellhead compressors.
23. Explain the difference between a reciprocating compressor and a rotary screw compressor.
24. Understand other uses of wellhead compressors for artificial lift.
25. Explain why we use artificial lift.
26. Identify the importance of the meter station.
27. Understand the different gas measuring devices.
28. Explain what happens to the gas when it leaves the location.