SAN JUAN COLLEGE
Success Matters

ENGY-1260 NATURAL GAS COMPRESSION 3 CREDITS

SYLLABUS

CATALOG DESCRIPTION

This course is an introduction to natural gas compressors, their design, use and operation. How compressors work, their components, design considerations and the basic gas laws used in compression will be stressed. The student will gain a basic knowledge of the compression process and the environmental hazards and safety associated with the operation of compressors.

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.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies 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 Dean of the appropriate School.

A copy of this approved syllabus is on file in the dean's office.

Course Learning Outcomes

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

1. Explain how compressors work and why we use compressors in the oil and gas industry, the major parts of a gas compressor package, the different drivers used for compressor packages, how a 2-stroke and a 4-stroke engine differ and how the driver is connected to the compressor.

2. Demonstrate why the different gas laws and the ideal gas law are important for compression and gas standards.

3. Demonstrate the basics of how a gas compressor works, the compression cycle, volumetric efficiency, rod loads and determine factors influencing the design of compressor units.

4. Identify and explain the different applications of compressor units in the oil and gas industry and the different types of compressor units and the considerations needed in selecting the proper compressor for the job.

5. Identify and explain the major components and function of those components and some of the considerations in the design of individual compressor components and valves.

6. Explain the function of the control panel, safety shutdowns and auxiliary equipment used on a compressor skid and the need for capacity control on a compressor skid and how it effects the compressor and its function.

7. Name the reasons and the desired functions of installing compressors on individual wells in the field and identify the different types of compressors used on the wellhead application in the field and why we use them.

8. Demonstrate how the daily operation effects the compressor package and the importance of maintenance and accurate record keeping on a daily, weekly and monthly basis on compressor packages and why it is essential in the efficient operation of compressors.

9. Demonstrate awareness of some of the safety hazards associated with a compressor installation and the mitigation of those hazards and the potential environmental hazards and how they are regulated.