



## **SYLLABUS**

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### **CATALOG DESCRIPTION**

This course is an overview of the topics that will be covered throughout the energy core curriculum. The course will introduce process equipment, systems, and operation. Some of the topics will include; hand tools, valves, piping, compressors, motors, heat exchangers, cooling towers, boilers, reactors, distillation, separators, plastics, refrigeration, water treatment, utilities. Basic chemistry and physics principles will be applied to process examples. Environmental standards, quality control and instrumentation will be covered.

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.sanjuacollege.edu/assessment](http://www.sanjuacollege.edu/assessment)).*

### **Course Learning Outcomes**

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

1. Describe the petrochemical and refining processes and system components.
2. Describe the responsibilities and expectations of a process technician.
3. Communicate at a fundamental level utilizing the Process Industry terminology on written assignments.
4. Describe the evolution of and future trends of the process industry.
5. Describe basic safety, health, and environmental standards relative to the Process Industry.
6. Identify and describe the purpose of equipment in systems and processes.
7. Interpret Process Flow Diagrams.
8. Interpret Piping and Instrumentation Diagrams.

9. Apply basic chemistry concepts to processing situations.
10. Apply basic physics principles to processing situations.
11. Describe the application of quality as it relates to the petrochemical and petroleum industry.