

IPOP-2460-INTRODUCTION TO INSTRUMENTATION 4 CREDITS

SYLLABUS

CATALOG DESCRIPTION

An introduction to the varied instruments and instrument systems used in the process industry including process variables, elements and instruments of pressure, level, flow, temperature and analytical devices, control loops, controllers, final control elements, Process Flow Diagrams, Process and Instrumentation Diagrams and instrumentation troubleshooting.

Prerequisites: **ENGY-110, ENGY-130, ENGY-133 and IPOP-245**

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.

Course Learning Outcomes

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

1. Define different terms associated with instrumentation categories and types
2. Identify and define the major process variables controlled in the process industry, as well as their units of measure and how to convert from one unit of measure to another

3. Explain the relationships between common process variables
4. Identify how pressure, temperature, level, flow and concentration are measured
5. Identify the instruments that comprise a control loop and describe their functions
6. Identify different control philosophies and principles used in controlling process variables as well as define terms associated with these control philosophies.
7. Interpret a Process and Instrumentation Diagram