

**MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE**

Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Collegewide Curriculum Committee.

DEPT. Process Plant Technology

COURSE NO. PPT 1125

NUMBER OF CREDITS: 1

COURSE TITLE: P&ID and PFD

CATALOG DESCRIPTION

This course will cover the symbols and diagrams commonly used on piping and instrumentation diagrams (P & ID's) and electrical one-line diagrams. Focus will be on identifying the types of diagrams, identifying instrument symbols and line symbols used on P & ID's, understanding the types of information typically found on a legend, using a P & ID to locate the components of a system, identification of symbols used on electrical one-line diagrams and reading a flow diagram to trace the flow paths of a system.

AUDIENCE Process Operators and Plant Personnel

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: none

LENGTH OF COURSE 1 semester

THIS COURSE IS USUALLY OFFERED:

Every other year fall X spring summer undetermined

Four goals are emphasized in course at Minnesota West Community & Technical College:

- 1) **ACADEMIC CONTENT:** The student will achieve the basic skills required to read and understand a technical diagram.
- 2) **THINKING SKILLS:** The student will understand the information required to apply the components and concepts discussed in this course.
- 3) **COMMUNICATIONS SKILLS:** The student will demonstrate both written and oral communication skills.
- 4) **HUMAN DIVERSITY:** The student will gain self-awareness regarding the feelings towards people regardless of culture, values or socioeconomic status.

TOPICS TO BE COVERED:

1. Identify instrument symbols.
2. Identify equipment arrangement diagrams
3. Describe the purpose of equipment arrangement diagrams.
4. Identify elevation drawings.
5. Identify piping system (flow) diagrams (P & ID's).
6. Identify electrical diagrams and legends.
7. Describe in general terms the information found on each type of diagram.
8. Identify the three types of system diagrams.
9. Identify the four basic parts of a system.
10. Identify the basic symbols associated with flow diagrams.
11. Identify symbols commonly used to represent components in flow diagrams.
12. Describe the basic operation of the components typically found in a fluid system.
13. Identify instruments using an identification chart.
14. Identify line symbols and instrument symbols used in piping and instrumentation diagrams.
15. Demonstrate how to read a P & ID.
16. Describe the types of information typically found in legend.
17. Locate the components in a boiler fuel oil system
18. Identify the symbols used to represent the components in a boiler fuel oil system.
19. Identify symbols found in one-line electrical diagrams.
20. Trace a typical one-line diagram
21. Describe the connections on a one-line diagram.
22. Demonstrate the use of a system diagram.

LIST OF EXPECTED COURSE OUTCOMES:

The main focus of this course is for students to be able to identify instrument symbols and line symbols used on P & ID's and one-line diagrams, and to be able to use a flow diagram to trace the flow paths of a system.

LEARNING/TEACHING TECHNIQUES used in the course are:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Collaborative Learning | <input type="checkbox"/> Problem Solving |
| <input checked="" type="checkbox"/> Student Presentations | <input type="checkbox"/> Interactive Lectures |
| <input type="checkbox"/> Creative Projects | <input type="checkbox"/> Individual Coaching |
| <input checked="" type="checkbox"/> Lecture | <input checked="" type="checkbox"/> Films/Videos/Slides |
| <input type="checkbox"/> Demonstrations | <input type="checkbox"/> Other (describe below) |
| <input checked="" type="checkbox"/> Lab | |

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Reading | <input checked="" type="checkbox"/> Tests | <input type="checkbox"/> Individual Projects |
| <input checked="" type="checkbox"/> Oral Presentations | <input type="checkbox"/> Worksheets | <input checked="" type="checkbox"/> Collaborative Projects |
| <input type="checkbox"/> Textbook Problems | <input type="checkbox"/> Papers | <input type="checkbox"/> Portfolio |
| <input checked="" type="checkbox"/> Group Problems | <input type="checkbox"/> Term Paper | |
| <input type="checkbox"/> Other (describe below) | | |

EXPECTED STUDENT LEARNING OUTCOMES:

The student will be able to identify and locate the symbols and diagrams commonly used on piping and instrumentation diagrams (P & ID's) and electrical one-line diagrams.

To receive accommodations for a documented disability, please contact the campus Student Services Advisor as soon as possible. Students are also encouraged to notify his/her instructor.

This document can be made available in alternative format by contacting Student Services, the Campus CEOs or calling Minnesota Relay Service at 1-800-627-3529. Reasonable accommodations will be provided upon request for documented disabilities. An Affirmative Action Equal Opportunity Educator/Employer. ADA Accessible.

The information in this course outline is subject to revision.