COURSE OUTLINE

DEPT. Fluid Power COURSE NO. FLPW2136

NUMBER OF CREDITS: 3

COURSE TITLE: Programmable Logic Controls

CATALOG DESCRIPTION: Demonstrates use of plc and circuits to control and power all phases of industrial automation. Pre-requisite of INDT 1125.

AUDIENCE: Student pursuing a diploma or degree in Mechatronics.

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable): N/A

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: INDT 1125

LENGTH OF COURSE: One semester, 3 cr. (2 lect/1 lab)

THIS COURSE IS USUALLY OFFERED:
Every other year ☐ fall ☒ spring ☐ summer ☐ undetermined ☐

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

1) ACADEMIC CONTENT: THE STUDENT WILL RECEIVE THE KNOWLEDGE AND SKILLS TO FUNCTION IN INDUSTRY.
2) THINKING SKILLS: THE STUDENT WILL SYSTEMATICALLY SOLVE CONTROL LOGIC PROBLEMS
3) COMMUNICATIONS SKILLS: THE STUDENT WILL BEGIN TO DEMONSTRATE APPROPRIATE COMMUNICATIONS BOTH ORAL AND WRITTEN.
4) HUMAN DIVERSITY: THE STUDENT WILL GAIN SELF AWARENESS REGARDING THEIR FEELINGS TOWARDS PEOPLE OF DIFFERENT CULTURES, VALUE SYSTEMS AND SOCIOECONOMIC STATUS.

TOPICS TO BE COVERED:
1. Describe PLC industry function
2. Describe evolution/history
3. Analyze PLC block diagram
4. Describe PLC program methods
5. Describe Boolean programming
6. Describe ladder logic programming
7. Describe various mfg hardwire layout
8. Program various mfg PLCs
9. Program with timers/counters
10. Program with sequencers
11. Program analog PLCs I/Os
12. Program using non-retentive timers
13. Program using 0/20 retentive timers
14. Describe emitter, receiver type sensor
15. Describe reflective type sensor
16. Describe diffused type sensor
17. Describe convergent beam sensor
18. Describe mounting and operation of beam sensors
19. Wire various optic type sensors

LIST OF EXPECTED COURSE OUTCOMES: Examine and program sensors and functions of wiring and perform those skills for employment and industry.

LEARNING/TEACHING TECHNIQUES used in the course are:
X■ Collaborative Learning            X■ Problem Solving
□ Student Presentations
□ Creative Projects
X■ Lecture
X■ Demonstrations
□ Lab

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
X■ Reading                      X■ Tests                      X■ Individual Projects
□ Oral Presentations
□ Textbook Problems
□ Group Problems
□ Other (describe below)

EXPECTED STUDENT LEARNING OUTCOMES:
- Program a variety of sensors
- Perform functions of wiring
- Perform those skills for employment and industry
- Analyze and describe functions and components

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or via your preferred Telecommunications Relay Service.

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The information in this course outline is subject to revision. 8/13