MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

DEPT. Industrial Technology COURSE NO. INDT 1131

NUMBER OF CREDITS: 3

COURSE TITLE: Hydraulic-Pneumatic Lab

CATALOG DESCRIPTION: Develops skills in plumbing, troubleshooting, and operation of basic pneumatic and hydraulic circuits, as well as basic fluid power fabrication. (Concurrent with FLPW1120 and FLPW1103)

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:

LENGTH OF COURSE: 3 Credits (0 lect/pres, 3 lab, 0 other)

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 design and connect pneumatic circuits, hydraulic circuits, and to fabricate various fluid power assemblies.
2) THINKING SKILLS: The student will systematically solve fabrication, hydraulic circuit and pneumatic circuit 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. operate various cylinder circuits
2. operate various hydraulic motor circuits
3. operate various pneumatic motor circuits
4. construct hose/tube/pipe assemblies
5. perform cylinder efficiency test
6. design/operate basic pneumatic circuits
7. design/operate basic hydraulic circuits
8. design/operate cylinder sequencing circuit
9. operate air/oil circuits
10. design/operate dual supply pneumatic circuit
11. design/operate dual supply hydraulic circuit
12. design/operate pneumatic speed control circuits
13. design/operate hydraulic speed control circuits
14. operate three-position cylinder circuits
15. operate rodless cylinder circuits
16. perform system pressure/cylinder speed test
17. operate two-hand safety circuit
18. operate vacuum circuit
19. This course will cover the characteristics of hazardous wastes and its safe handling, storage and disposal.

LIST OF EXPECTED COURSE OUTCOMES: The student will be able to design, connect and troubleshoot various electrical and pneumatic circuits.

LEARNING/TEACHING TECHNIQUES used in the course are:
- Collaborative Learning
- Student Presentations
- Creative Projects
- Lecture
- Demonstrations
- Lab

Problem Solving
- Interactive Lectures
- Individual Coaching
- Films/Videos/Slides
- Other (describe below)

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
- Reading
- Oral Presentations
- Textbook Problems
- Group Problems
- Other (describe below)

- Tests
- Worksheets
- Papers
- Term Paper
- Individual Projects
- X Collaborative Projects
- Portfolio

EXPECTED STUDENT LEARNING OUTCOMES:

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

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.

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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. A Member of the Minnesota State Colleges and Universities System An Affirmative Action Equal Opportunity Educator/Employer

The information in this course outline is subject to revision. 10/13