DEPT. MECH                COURSE NUMBER: 1131

NUMBER OF CREDITS: 1 credit lab

COURSE TITLE: Pneumatic Lab

CATALOG DESCRIPTION: Provides students with skills in plumbing, troubleshooting, and operation of basic pneumatic circuits. Concurrent with MECH 1120.

AUDIENCE: Mechatronics and Energy Technical Specialist students

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area: by meeting the following competencies:
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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:

LENGTH OF COURSE: semester

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 academic objectives of this course are:
   a. Achieve basic knowledge and skills needed to perform functional tests on pneumatic components.

2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. Develop test taking skills
   b. Analyze problems and troubleshoot solutions

3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Demonstrate both written and oral communication skills during lab presentations
b. Interact and collaborate other students in lab assignments

4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. Help students recognize, understand and appreciate working in groups to solve problems

TOPICS TO BE COVERED:
1. Basic pneumatic circuits
2. Cylinder sequencing circuits
3. Air/oil circuits
4. Dual supply pneumatic circuit
5. Pneumatic speed control circuits
6. Rodless cylinder circuits
7. System pressure and cylinder speed tests
8. Two-hand safety circuits
9. Vacuum circuits

COURSE LEARNING OUTCOMES (GENERAL):
1. The student will be demonstrate the ability to test the basic functions of pneumatic components to determine proper operation and apply in real-work setting.
2. The student will design, connect, and troubleshoot basic pneumatic circuits.

STUDENT LEARNING OUTCOMES (SPECIFIC):
1. Design/operate basic pneumatic circuits
2. Design/operate cylinder sequencing circuit
3. Operate air/oil circuits
4. Design/operate dual supply pneumatic circuit
5. Design/operate pneumatic speed control circuits
6. Operate rodless cylinder circuits
7. Perform system pressure/cylinder speed test
8. Operate two-hand safety circuit
9. Operate vacuum circuit

LEARNING/TEACHING TECHNIQUES used in the course are:
- Collaborative Learning
- Problem Solving
- Student Presentations
- Interactive Lectures
- Creative Projects
- Individual Coaching
- Lecture
- Films/Videos/Slides
- Other (describe below)
- Lab
ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- Reading
- Tests
- Individual Projects
- Oral Presentations
- Worksheets
- Collaborative Projects
- Textbook Problems
- Papers
- Portfolio
- Group Problems
- Term Paper
- Other (describe below)

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.

The information in this course outline is subject to revision

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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