

**MESABI RANGE COMMUNITY & TECHNICAL COLLEGE – VIRGINIA/EVELETH
COURSE OUTLINE**

Course Title: Industrial Pneumatics
Quarter Course Prefix and Number:
Semester Course Prefix and Number: EIAT 1244

Approval Date:
Revision Date: 2/22/06

Number of Credits: 2 **Number of Lecture Credits:** 0 **Number of Lab Credits:** 2
Semester(s) Offered: **Number of Studio/Discussion Credits:**
Class Size: 24
Negotiated by AASC on
(Date)__

Course Purpose Code:

- 0 – Developmental Courses
- 1 – Non-Transferable General Studies
- 2 – Technical course related to career programs
- 3 – College course which has the primary goal of applying certain concepts (e.g. vocal ensemble)
- 4 - Other college course not considered a part of general education (MNTC) e.g. computer science, health, physical education
- 5 – Course which is intended to fulfill Minnesota Transfer Curriculum (MNTC) requirements.
- 9 – Continuing Education/Customized Training specialized credit course (not occurring in 0-5)

Catalog Description:

This course covers the general fundamentals of machine control utilizing pneumatics and electro-pneumatics. Concentrates on pneumatic systems, control devices and actuators related to machine control with practical applications involving robotic workcells, pick and place robots, parts handlers, motion control and interfacing of air and electrical circuits.

Prerequisites and/or recommended entry skills/knowledge:

Course Prerequisite(s): Electrical Theory
Reading Prerequisite:
Composition Prerequisite:
Mathematics Prerequisite:

Career Programs and Transfer Majors Accessing this Course:

Electrical and Industrial Automation Technology

Minnesota Transfer Curriculum Goal(s) partially met by this course if applicable:

- | | |
|--|--|
| 0. <input checked="" type="checkbox"/> None | 6. <input type="checkbox"/> The Humanities and Fine Arts |
| 1. <input type="checkbox"/> Communications | 7. <input type="checkbox"/> Human Diversity |
| 2. <input type="checkbox"/> Critical Thinking | 8. <input type="checkbox"/> Global Perspectives |
| 3. <input type="checkbox"/> Natural Sciences | 9. <input type="checkbox"/> Ethical and Civic Responsibility |
| 4. <input type="checkbox"/> Mathematical/Logical Reasoning | 10. <input type="checkbox"/> People and the Environment |
| 5. <input type="checkbox"/> History and the Social and Behavioral Sciences | |

Learning outcomes, including any relevant competencies listed in the Minnesota Transfer Curriculum:

Following the completion of this course the student will be able to demonstrate the ability to:

- 1.) Work safely with pneumatic fluid power systems.
- 2.) Identify the basic schematic symbols related to pneumatic devices.
- 3.) Apply the laws of physics related to temperature, pressure and volume.
- 4.) Apply the laws of physics related to force, pressure and area.
- 5.) Identify and use simple pumps and compressors
- 6.) Identify and use directional and variable flow rate control valves.
- 7.) Identify and use pneumatic actuators.
- 8.) Observe proper safety procedures.
- 9.) Work cooperatively.
- 10.) Apply critical thinking skills.

Possible student assessment methods:

Lab assignments, worksheets, papers, and tests.

Use of instructional technology (includes software, interactive video and other instructional technologies):

Power Point Software, videos, pneumatic lab facilities and equipment

A one-paragraph summary or outline of the major course content:

See "Learning Outcomes" above.

The emphasis will be on giving the participant the required knowledge concerning the elements and devices needed in pneumatic and electric control for machine control.

Additional special information (special fees, directives on hazardous materials, etc.)

Laptop Computer Lease

Approvals:

Body	Representative Signatures	Date
Curriculum Committee		
Faculty Association		
Academic Affairs Standards Committee		
Chief Academic Officer		

Distribution: Original – Administrative Office

Copies: Curriculum Committee Chair, Learning Center, Library, Originating Faculty Member, Records, Student Services, Scheduler, Transfer Specialist

Revised February 10, 2004