

# MESABI RANGE COMMUNITY & TECHNICAL COLLEGE

## Course Outline

**Course Title:** Industrial Pneumatics  
**Semester Course Prefix and Number:** PAS 1244  
**Old Quarter Course Prefix and Number:**

**Submitted By:** Scott Norcia  
**Approval Date:**  
**Revision Date:** 11/23/11

**Number of Credits:** 2  
**Semester(s) Offered:** Fall  
**Class Size:** 24

**Number of Lecture Credits:** 0  
**Number of Lab Credits:** 2      **Number of Lab Hours:** 4  
**Number of Studio/Demonstration/Internship Credits:**

Negotiated by AASC on:  
(date)

### Course Purpose Code:

- 0 – Developmental Courses
- 1 – Non-transferable, General Education
- 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 the Minnesota Transfer Curriculum (MNTC) requirements or intended for transfer.
- 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): None  
Reading Prerequisite: None  
Composition Prerequisite: None  
Mathematics Prerequisite: None

### Career Programs and Transfer Majors Accessing this Course:

Process Automation Systems Diploma  
Process Automation Systems AAS

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

(Notes: No more than two goals may be met by any one course. Curriculum Committee review and the Chief Academic Officer's approval are required.)

- |  |  |
|--|--|
| 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.

**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, software based lab simulators.

**Outline or Statement of Major Course Content:**

See "Learning Outcomes" above.

**Additional Special Information:** (special fees, directives on hazardous materials, etc.)

Laptop Computer Lease

**Transfer Information:** (Please list colleges/majors that accept this course in transfer.)

None

**Approvals:**

Body	Representative Signatures	Date
Curriculum Committee	<i>Alan R. Kohn</i>	11-29-11
Faculty Association	<i>Julie Devereux</i>	13-5-11
Academic Affairs Standards Committee	<i>Alan R. Kohn</i>	11-29-11
Chief Academic Officer		

**Distribution:** Original – Administrative Office

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

**Revised:** October 2006