

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

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**Course Title:** Automated Industrial Control  
**Quarter Course Prefix and Number:**  
**Semester Course Prefix and Number:** EIAT 2276

**Approval Date:**  
**Revision Date:** 7/25/2012

**Number of Credits:** 4      **Number of Lecture Credits:** 0      **Number of Lab Credits:** 4  
**Semester(s) Offered:**      **Number of Studio/Discussion Credits:**  
**Class Size:** 24  
**Negotiated by AASC on**  
**(Date)**\_\_

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**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 advanced automated control for medium and large industrial manufacturing with an emphasis on concepts related to analog (process) control. Included in this project based course will be topics related to pre-engineering and design, mechanical installation/wiring, digital and analog control loops within the PLC, SCADA/HMI development and implementation, as well as the integration into the project of DeviceNet and Foundation Fieldbus advanced field level network devices.

**Prerequisites and/or recommended entry skills/knowledge:**

Course Prerequisite(s): EIAT 1251, EIAT 1266, EIAT 1275, and CSCI 1455, or Instructor's consent.  
Reading Prerequisite: Minimum score on basic skills test  
Composition Prerequisite:  
Mathematics Prerequisite: Minimum score on basic skills test

**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:**

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|--|--|
| 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.) Integrate basic process instruments.
- 2.) Integrate basic machine control devices.
- 3.) Implement a SCADA system.
- 4.) Implement a basic industrial fieldbus system.
- 5.) Document an integrated process.
- 6.) Troubleshoot an integrated process.

**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, software based lab simulators.

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

See "Learning Outcomes" above.

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

Laptop Computer Lease

**Approvals:**

<b>Body</b>	<b>Representative Signatures</b>	<b>Date</b>
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