Course Title: Automated Industrial Control
Semester Course Prefix and Number: PAS 2276
Old Quarter Course Prefix and Number: 

Submitted By: Scott Norcia

Approval Date: 
Revision Date: 2/16/12

Number of Credits: 5
Number of Lecture Credits: 0
Number of Lab Credits: 5
Number of Lab Hours: 10
Class Size: 24

Negotiated by AASC on: (date)

Course Purpose Code:

- 0 – Developmental Courses
- 1 – Non-transferable, General Education
- X 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 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/PAS 1253, EIAT/PAS 1233, EIAT/PAS 1243, EIAT/PAS 1295, & EIAT/PAS 1244
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:
(Note: 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. X None
1. Communications
2. Critical Thinking
3. Natural Sciences
4. Mathematical/Logical Reasoning
5. History and the Social and Behavioral Sciences
6. The Humanities and Fine Arts
7. Human Diversity
8. Global Perspectives
9. Ethical and Civic Responsibility
10. People and the Environment
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.) Install and integrate basic field devices.
2.) Configure a PLC for continuous discrete level and analog, flow and temperature control.
3.) Configure and tune a PID controller
4.) Implement a SCADA/HMI system.
5.) Implement basic industrial fieldbus systems, (analog and digital).
6.) Configure remote PLC communications using Ethernet/IP
7.) Document an integrated process.
8.) Troubleshoot an integrated process.

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:

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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