IND248 Programmable Logic Controllers Syllabus

Course Information
Credits 3
Campus Washburn Institute of Technology (Forbes Facility)
Address 6530 SE Forbes Avenue
City/State/Zip Topeka, Kansas 66619
Office Fax 785-670-2734

Description
This course builds on the knowledge gained in ‘Programmable Logic Controllers I’ and focuses on the fundamentals of installing and troubleshooting of industrial communications networks using Ethernet and ControlNet; operation, installation, configuration and troubleshooting of the DeviceNet field-device network; and Human-to-Machine Interface (HMI) using Allen Bradley ControlLogix PLCs.
Prerequisite: IND216 or consent of instructor.

Textbooks

Student Learning Outcomes:
A. Communicate effectively
B. Integrate technology
C. Learn effectively
D. Demonstrate cooperative teamwork skills
E. Apply safety in the workplace
F. Think critically and creatively
G. Demonstrate responsible work ethics

Competencies
1. Describe proper grounding practices and preventive maintenance tasks associated with PLC systems.
2. Describe PLC troubleshooting procedures.
3. Compare individual, centralized and distributive control systems.
4. Demonstrate analog I/O installation and programming.
5. Demonstrate analog I/O interfacing and troubleshooting.
6. Demonstrate ability to install and configure ControlNet networks.
7. Demonstrate ability to install and configure Ethernet networks.
8. Demonstrate ability to troubleshoot Ethernet networks.
9. Recognize and explain the functions of the control elements of a closed loop system.
10. Demonstrate the ability to operate and install the DeviceNet field –device network.
11. Demonstrate the ability to configure and troubleshoot the DeviceNet field –device network.
12. Describe various functions of electronic HMI screens.
13. Demonstrate ability to operate and install PanelView operator interface.
14. Demonstrate ability to configure and program PanelView operator interface.

Guidelines for Success

Assessment Plan
Assessment is an integral part of the educational process at Washburn Tech and accurate feedback is an important tool in continuously improving the institution’s technical programs. Students can expect to participate in assessment activities prior to entry into programs, within specific courses and following program completion for specific fields of study.

Grading Rationale
Class sessions and assignments will include daily homework, in-class review of homework, quizzes. Grades will be based on: Attendance and general participation, daily homework, quizzes and tests and final exam.

Grading Scale
90% or higher A
80% to 89% B
70% to 79% C
60% to 69% D
Less than 60% F

Attendance
Tardies and absences will affect the daily grade for attendance. Students who miss class should inform the instructor beforehand whenever possible, and are responsible for course content, for turning in any required homework, and for taking the initiative to make up any missed tests, labs or quizzes.
Disability
The Special Support Services (SSS) Office is responsible for assisting in arranging accommodations and for identifying resources at Washburn Institute of Technology for persons with disabilities. Qualified students with disabilities MUST register and provide documentation with the office to be eligible for services. New requests for accommodations should be submitted two months or more prior to the date services should begin; however, contact the SSS Office as soon as a need may arise. Depending on the accommodation request, four to eight week lead time may be needed for timely and effective provision of services. SSS coordinates and assist in arranging services it deems appropriate of eligible students on a case-by-case basis.

If you are a student with a disability that may substantially limit your ability to participate in this class and believe you will need accommodations, it is your responsibility to contact:

Special Support Services Coordinator
Phone: 785-228-6356
E-Mail: ssscoordinator@washburn.edu