Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Programmable Controllers
Prefix and Course Number: ELMT 265

Course Learning Outcomes:
By the end of this course, a student should be able to:

- operate analog input/output devices
- apply motion control to automated equipment
- utilize and apply vision equipment
- apply programmable controller networking basics
- install and configure PLC programming software
- program a man machine interface (MMI) used in machine control.
- Course content will vary depending on the individual professional/technical program needs.

Course Outline
I. Analog Signals
    A. 4-20 Milliamp
    B. 0-10 Volt
II. Analog Devices
    A. Transducers
    B. Tachometers
III. Analog I/O Modules
    A. Types
    B. Installation
    C. Configuration
IV. Analog I/O Module Scaling
    A. Scaling Methods
        1. Hardware
        2. Software
    B. Scaling into Programming Units
V. Motion Control Applications
    A. Encoders and High Speed Counters
        1. Specifying pulses per revolutions
        2. Types
    B. Machine Operation
VI. Vision Concepts
    A. Hardware Basics
    B. Software Basics
VII. Programmable Logic Controller (PLC) Networking Basics and Concepts
    A. Message Command
    B. Allen-Bradley's Data Highway
    C. Information Sharing for Machine Control
    D. Software Installation
    E. PLC Programming Software Installation
    F. PLC Configuration
VIII. Man Machine Interface Basics and Concepts
    A. Graphical Machine Interface with a PLC
    B. Animated Process Representation