



Mechatronics

HMI

Automation



Process Control



Hydraulics

Industrial Training

Industrial Networking

This 2-day course will introduce networking concepts used in industry for communications between automated processes. Participants will develop local networks using both computers and automation devices such as PLC's and HMI's.

Course Objectives :

- To configure and troubleshoot a serial connection
- To introduce networking concepts
- To configure and troubleshoot a local area network using computers and PLC's
- To transfer data between PLC's via a network connection
- To configure and troubleshoot an Ethernet I/P network
- To configure and troubleshoot a DeviceNet network

Pre-Requisite: Intermediate PLC's

Introduction to RSLogix 5000, ControlLogix and Compact Logix

This 3-day program provides an introduction to RSLogix 5000 and its use with ControlLogix and CompactLogix processors. The course will provide participants with hands-on programming exercises to develop an understanding of the configuration and capabilities of these systems. Also discussed will be troubleshooting techniques and communication considerations.

Course Objectives:

- To install and configure I/O for an existing system
- To introduce participants to the memory organization of Logix processors
- To introduce participants to the different data types and their values
- To discuss the tag data base and addressing
- To create and edit a tag data base
- To develop a program using relay type, timer, counter, math and compare instructions
- To introduce routines and subroutines for program control
- To introduce troubleshooting techniques
- To update processor and I/O firmware

Pre-Requisite: Introductory and Intermediate PLC's

Industrial Training

Industrial Motors

This 2-day course is designed to provide an understanding of DC and AC Motor operation and installation. Participants will install and study the characteristics of various motors used in industry. The course will finish with an in depth look at troubleshooting motors.

Course Objectives :

- To introduce the operation and installation of DC series, shunt and compound motors
- To introduce the operation and installation of AC single phase motors
- To introduce the operation and installation of AC 3-phase motors
- To install and measure operating variables and loading characteristics
- To discuss and utilize an ohmmeter and megohmmeter for troubleshooting motors
- To troubleshoot DC Motors
- To troubleshoot AC Motors

No Pre-Requisite however, participant should have a good understanding of electricity

Variable Speed Drives

This 2-day course is designed to provide an understanding of the operation and use of AC variable speed drives in industry. Hands-on activities will allow participants to install and configure drives for operation.

Course Objectives:

- To introduce drive components and ratings
- To discuss the operation of variable speed drives
- To install, correctly wire, and configure a drive to control an AC Motor
- To configure remote devices for control of an AC drive
- To configure preset speeds and ramp parameters
- To discuss voltage, current and HP considerations

No Pre-Requisite however, participant should have a good understanding of motors and motor controls.

Introduction to Hydraulics

This 3-day course is designed to introduce the components of a hydraulic system and their use in automated equipment. Participants will utilize hands-on activities to develop skills for installation, maintenance, and troubleshooting of hydraulic systems.

Course Objectives:

- To introduce components and their operation
- To discuss symbols and schematics
- To discuss reservoirs and the operation of pumps
- To discuss rotary and linear actuators
- To discuss flow control
- To discuss pressure control
- To discuss directional control
- To develop and install hydraulic circuits
- To troubleshoot hydraulic circuits

No Pre-Requisite

Industrial Training

Introduction to Pneumatics

This 3-day course is designed to introduce the components of pneumatic systems and their use in automated equipment. Participants will utilize hands-on activities to develop skills for installation, maintenance, and troubleshooting of pneumatic systems.

Course Objectives :

- To introduce components and their operation
- To discuss symbols and schematics
- To discuss receivers and the operation of compressors
- To discuss rotary and linear actuators
- To discuss flow control
- To discuss pressure control
- To discuss directional control
- To develop and install pneumatic circuits
- To troubleshoot pneumatic circuits

No Pre-Requisite

Introduction to PLC's - Level 1

This 2-day course is designed to provide participants with an introduction to PLC components and their use in industrial applications. This entry level course will provide participants with hands-on activities through lab's allowing the development of foundational skills. The competencies discussed and developed in this introductory course will be used as a foundation for future PLC courses.

Course Objectives :

- To identify basic control components and their function
- To convert and interpret data in different number systems
- To identify PLC hardware components and their functions
- To install and correctly wire input and output devices to a PLC
- To apply and develop addressing for use in PLC programs
- To utilize relay type instructions to control an automated process

No Pre-Requisite

Introduction to PLC's - Level 2

This 2-day course is designed to build upon the skills and knowledge developed in Level 1. Participants will be introduced to additional practices associated with PLC programs used in industry. The activities and labs provided in this course will increase the participants' knowledge and understanding of these PLC systems. Competencies discussed and developed through Level 2 will be intrinsic for progression to the Level 3 course.

Course Objectives:

- To utilize timer and counter instructions to control an automated process
- To utilize math instructions to make calculations within a PLC program
- To utilize comparison instructions to control a process
- To develop a program operation using data manipulation instructions
- To utilize program control instructions to alter program sequence
- To demonstrate the use of search functions to navigate larger programs
- To demonstrate troubleshooting techniques to identify faults within a process

Pre-Requisite: Introduction to PLC's Level 1

Industrial Training

Intermediate PLC's

This 2-day course builds on the competencies of Level I and II Introductory courses to increase the understanding and capabilities of intermediate control methods used in PLC programs. Participants will again use hands-on programming exercises to build on knowledge from previous courses.

Course Objectives :

- To identify the operation and use of bit shift instructions in an automated process
- To utilize file fill instructions in a process application
- To demonstrate the use of sequencer instructions in an automation application
- To demonstrate the use of file load and file unload instructions
- To demonstrate the use of messaging instruction to transfer data between devices

Pre-Requisite: Introduction to PLC's Level 2

Advanced PLC's

This 3-day program provides an introduction to alternate programming languages used in automated machinery. Participants will use the knowledge and understanding gained from previous courses to develop programs and troubleshoot those programs.

Course Objectives :

- To introduce the concepts of developing a sequential function chart (grafcet)
- To develop a program using sequential function chart programming
- To introduce the concepts of function block programming
- To develop a program using function block programming techniques
- To introduce the concepts of structured text programming
- To develop a program using structured text programming techniques
- To troubleshoot an automated process using each programming language above

Pre-Requisite: Introduction to RSLogix 5000

Introduction to HMI

This 2-day course is designed to provide participants an understanding of the operation and use of HMI applications in industry. Participants will develop HMI applications and communications with PLC's. Activities will also allow control of an automated process from the HMI.

Course Objectives:

- To introduce participants to the operation and function of the required software
- To develop an HMI application to control an automated process
- To develop a PLC application to be used with the HMI to control a process
- To configure objects and links in the applications
- To configure animations for applications
- To configure communications between all components

Pre-Requisite: Introduction to PLC's Level 1& 2

Other industrial training topics are available other than those listed in this publication.

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