Available Courses

FA1 - PLC Level 1 (CX-Programmer)

Summary

FA1 - PLC Level 1 (CX-Programmer) Course introduces participants to the basics of automated control systems using PLCs as the primary control device. This course is suitable for beginners or professionals seeking to refresh their foundational knowledge. The course details cover the core principles and basic usage of PLCs. Participants will be able to understand the differences between Relay-based control logic and PLC-based control configurations. Participants will also be able to apply the knowledge gained to work with other PLC models and develop their own PLC programming skills.

Qualifications for Participants:

- Basic understanding of electrical systems is required
- Work in a control systems-related field such as technicians, engineers, or automation enthusiasts.
- Basic computer proficiency is required.

Course Outline:

- Introduction to Basic Digital Concepts and Number Systems
- Types, Structure, and Working Principles of PLC
- Communication and Integration of PLC with Various Supporting Devices
- Programming using Software
- Using Basic Instruction
    - Basic Ladder Diagram (LD, AND, OR)
    - Control bit command (SET, RESET, KEEP, DIF Up, DIF Down)
    - Timer/Counter Command
- Special instruction
    - Compare command
    - Shift register command
    - Move command

- Basic programming and using applied software, special instruction, PLC programming practice and system demonstration.

Duration:

2 Days Registration 8.30 AM.

Course Fees:

4,500 / Person (Exclude VAT 7% and withholding tax 3%)

Participants:

5-10 people

Demo Kits:

CP1L

FA2 - PLC Level 2 (CX-Programmer)

Summary

FA2 - PLC Level 2 (CX-Programmer) course is suitable for those with basic knowledge or who have successfully completed the FA1 - PLC Level 1 (CX-Programmer) Course. The course content covers various theories of automatic control, such as ON/OFF control, Proportional (P) control, Integral (I) control, Derivative (D) control, and PID control, to build a foundational understanding of control units for participants.

This course will focus on enabling participants to work with PLCs that can receive analog signals for both input and output units, as well as programming methods that control various types of input/output devices. Additionally, participants will learn special commands to simplify the complex systems logic and be introduced to various types of special input/output units and PLC communication systems.

Qualifications for Participants:

- FA1 - PLC Level 1 (CX-Programmer) Course is required or possesses equivalent foundational knowledge.
- Participants should be able to use the CX-Programmer software for writing programs.

Course Outline:

- Automation Control System Theory (ON/OFF, P, I, D, PID)
- High instruction command
    - Increment/Decrement command
    - MOVE Digit command
    - Mathematic command (BCD ADD/ SUB/ Function Block Programming)
    - Database command (SCL, PID)
- Analog control
    - Analog input/analog output
    - Using Analog input/analog output with PID command
- PLC Network Communication
    - SFC Programming

- PLC programming practice and system demonstration

Duration:

2 Days Registration 8.30AM.

Course Fees:

4,500 / Person (Exclude VAT 7% and withholding tax 3%)

Participants:

5-10 people

Demo Kits:

CJ2M

FA3 - PLC Level 1 according to IEC 61131-3 Standard (SYSMAC Studio)

Summary

FA3 - PLC Level 1 according to IEC 61131-3 Standard (SYSMAC Studio) course focuses on utilizing the Sysmac Studio software package. The curriculum is designed to introduce participants to the fundamentals of industrial automation control systems, featuring NJ and NX Series PLCs (Machine Controllers) as the primary control device.

This course is suitable for beginners starting their journey or professionals seeking to refresh and strengthen their core foundational knowledge. The course covers the fundamental operating principles and practical applications of the NJ and NX series. Participants will learn to understand the differences between relay-based control logic and PLC-based control configurations using the NJ and NX platforms.

Participants will be able to apply the knowledge gained to various industrial control applications. Furthermore, the training approach is structured to empower attendees to independently develop, advance, and scale their own PLC programming models for NJ and NX Series controllers.

Qualifications for Participants:

- Basic understanding of electrical systems is required.
- Work in a control systems-related field such as technicians, engineers, or automation enthusiasts.
- Basic computer proficiency is required.

Course Outline

- Fundamentals of Automation Control Systems, Digital Logic Basics, and Number Systems.
- Hardware Architecture, Product Classification, and Operating Principles of NJ and NX Series PLCs.
- Data Types: Classifications of Variables and Constants.
- Introduction to PLC Programming using Sysmac Studio Software (IEC 61131-3 Standard).
- Essential Programming Instructions for NJ and NX Series PLCs.
- Basic Ladder Diagrams and Program Control Instructions.

- Sequence Control Instructions (S, R, RS, SR, R_TRIG, F_TRIG).
- Timer and Counter Instructions (TON, TOF, CTU, CTUD).
- Data Movement Instructions (MOVE).
- Bit Shifting Instructions (SHL and SHR).
- Commonly Used Instructions in Factory Automation Systems.
- Practical Control Application Examples and Case Studies.
- Foundations of Structured Text (ST) Programming Basics.
- Fundamentals of Analog Input and Analog Output Modules.

Duration:

2 Days Registration 8.30AM.

Course Fees:

4,500 / Person (Exclude VAT 7% and withholding tax 3%)

Participants:

5-10 people (For Bangkok center)

15-20 people (For Lamphun and Songkhla center)

Demo Kits:

NX1P

FA4: PLC Level 2 according to IEC 61131-3 Standard (SYSMAC Studio)

Summary

FA4: PLC Level 2 according to IEC 61131-3 Standard (SYSMAC Studio) course utilizing Sysmac Studio software is suitable for individuals who have successfully completed the PLC Level 1 according to IEC 61131-3 Standard (Sysmac Studio) training course.

This course will focus on the in-depth architecture of the entire memory area, graphical analysis and theories of automatic control such as ON-OFF control, Proportional (P) control, Integral (I) control, Derivative (D) control, and PID control, along with engineering unit scaling to understand quantitative process control principles.

Participants will be able to master analog I/O configuration (both input and output processing) and program controls for diverse analog field devices. Furthermore, participants will learn special command to simplify complex system logic and receive a comprehensive introduction to modern industrial network communications compliant with the IEC 61131-3 standard.

Qualifications for Participants:

- FA3 - PLC Level 1 according to IEC 61131-3 Standard (SYSMAC Studio) course completion is required or possesses equivalent foundational knowledge.
- Basic computer proficiency is required.

Course Outline

- Automation Control System Theory (ON/OFF, P, I, D, PID).
    - NX Series PLC integration
    - NA Series HMI integration
    - PID Tuning & Operations
    - Network Configurations
    - Servo Motor Control via EtherCAT
- Memory Allocation and Management in NJ and NX Series PLCs, and SD Memory Card Operations.
- Advanced High-Level Instructions for Industrial Automation.
- Advanced Increment and Decrement Instruction Groups.

- Advanced Data Movement and Transfer Instruction Groups.
- Advanced Mathematical Function Groups (Integer and Floating-Point Math).
- Advanced Process Control Instruction Groups (PID and SCL / Scaling).
- Analog Control System Architecture.
- Configuration, Scaling, and Troubleshooting of Analog Input and Analog Output Modules.
- Integrating Analog I/O with PID Control Loop Instructions.
- Introduction to Factory Network Communications for NJ/NX Series PLCs (EtherNet/IP, EtherCAT, and IO-Link).
- Practical Application Programming Exercises for Complex Automation Scenarios.
- Foundations of NA Series HMI Setup and Interface Design.
- Introduction to Basic Servo Motor Control via EtherCAT Network.

Duration:

3 Days Registration 8.30AM.

Course Fees:

10,000 / Person (Exclude VAT 7% and withholding tax 3%)

Participants:

3-6 people

Demo Kits:

NX1P

FA5: Fundamentals of Vision Sensors and Applications

Summary

FA5: Fundamentals of Vision Sensors and Applications course is designed to provide participants with a comprehensive understanding of image processing principles using vision controller software, specifically for integration with PLCs.

The curriculum introduces participants to image processing fundamentals, inspection processes, system configuration, and the practical application of vision tools including the examples of commonly used function for each type of industry. In detail, the course covers the classification, selection, and optimization of inspection results using specific vision tools. Upon completion, participants will be able to apply this knowledge to design automated and smart manufacturing production systems.

Qualifications of Participants:

- Technicians, Engineers, or automation enthusiasts seeking to utilize vision sensor technologies.
- Participants should have foundational knowledge or have completed PLC Level 1 and Level 2 training courses or possess equivalent practical experience in PLC operations.

Course Outline

- Fundamentals of Digital Imaging and the Role of Vision Sensors in Automation Systems.
- Hardware Architecture, Classifications, and Operating Principles of Vision Sensors.
- Communication Interfaces and Connectivity with External Devices and Software.
- Principles of Image Acquisition and Optoelectronic Theory.
- Application Programming using Dedicated Image Processing Software.
- Step-by-Step Sensor Setup, Calibration, and Commissioning.
- Image Feature Identification and Inspection Methodologies:
    - Search and Shape Search Tools
    - Gravity & Area (Centroid Detection)
    - Color Data Analysis

- Labeling (Blob Analysis)
- Edge Position and Edge Pitch Measurement
- Circular Scan Edge Position, and more.

Duration:

2 Days Registration 8.30AM.

Course Fees:

4,500 / Person (Exclude VAT 7% and withholding tax 3%)

Participants:

3-6 people

Demo Kits:

FQ2 Smart Vision

FA6: Fundamentals of Temperature Controllers and Applications

Summary

FA6: Fundamentals of Temperature Controllers and Applications course is designed to provide participants with a comprehensive understanding of the core operating principles and fundamental concepts of thermal control systems. The curriculum covers initial device configuration, input sensor types, and the characteristics of various control outputs.

Participants will gain hands-on experience configuring different functions to achieve optimal temperature stability and control loop performance. Furthermore, the course is structured to empower attendees to independently apply these configurations, adjust parameters, and optimize machinery setups on the factory floor.

Qualifications of Participants:

- Basic understanding of electrical systems is required.
- Work in a control systems-related field such as technicians, engineers, or automation enthusiasts.

Course Outline

- Fundamental Concepts of Temperature Control Systems.
- Initial Configuration and Parameters Setup for Temperature Controllers.
- Operating Principles and Selection Guide for Input Sensor Types: Thermocouples (TC), Resistance Temperature Detectors (RTD), and Analog Inputs based on application needs.
- Operating Principles and Selection Guide for Control Outputs: Relay Output and Voltage Output (for driving Solid State Relays - SSR).
- Linear Outputs Processing (0-10V, 4-20 mA).
- Hands-on Practice: Function Configuration and Parameter Tuning using Dedicated Demonstration Kits.
- Configuration of Alarm Functions, ON/OFF Control Mode, and PID Auto-Tuning Mode.
- Practical Application Examples: Interfacing Temperature Controllers with PLCs via serial communication (RS-485).

Duration:

1 Day Registration 8.30AM.

Course Fees:

3,000 / Person (Exclude VAT 7% and withholding tax 3%)

Participants:

5-10 people

Demo Kits:

Temperature Controller