

PLC 101

Industrial Automation Fundamentals

This course is designed to help engineers and technicians gain a general understanding of industrial automation system. The objective is for participants to build a strong foundation, gain the basic skills and learn automation concepts which are vital leading to higher levels. The trainees are taught basic knowledge about control components and detection devices, basic PLC programming, and practical skills required to identify problems and malfunctions in a control system and fix those problems quickly and safely. The course is primarily hands-on using dedicated training equipment incorporating Omron's PLC.

COURSE DETAILS	DURATION	COST
Safety When Working with Electricity	5 Days	USD 750/Pax In-House Training (Rate is exclusive of VAT)
Diagnosis of Disconnected Sequence Circuits		
Relay Structure, Malfunction and Causes		
Timer Structure, Malfunctions and Causes		
Basic Knowledge about Detection Devices		
Limit Switches Maintenance		
Proximity Sensor Maintenance		
Photoelectric Sensor Maintenance		
Basic PLC Information		
PLC Hardware Settings		
CX-Programmer Software Settings		
Basic Ladder Programming		
Introduction to PLC Special I/O Modules		
Maintenance Implementation		
Corrective Maintenance		
Editing Programs for Debugging		
Test Operation		
Implementation Corrective		
Program Management		
Replacing and Restoring Units and Batteries		

The course is suitable for those who are just starting their career in industrial automation and experienced programmers who wish to learn to use the features of CX-Programmer and acquire practical skills that will enable them to perform breakdown maintenance or troubleshooting.

PLC 201

Motion Control

This course aims to provide engineers working in motion control with a strong background of application related skills when integrating Omron mechatronic products. Focusing on the CJ1M Built-in Pulse Output and NC Card Position Controller Unit, the course is modular in format. Each module consists of a hands-on, practical workshop. Dedicated training equipment and PC-based programming tools are used to assist attendees in developing new skills and to produce functionally correct and well-structured software solutions.

COURSE DETAILS	DURATION	COST
Introduction to servo systems: <ul style="list-style-type: none"> • Closed loop systems • Pulse train signals • Servo sizing 	2 Days	USD 300/Pax In-House Training (Rate is exclusive of VAT)
Interfacing with Omnic G5 Servo System: <ul style="list-style-type: none"> • Configuration and wiring 		
PLC CPU's Built-In Pulse I/O settings and command instructions		
NC Card Position Control Unit settings and configuration		
NC Card Position Control Unit settings and configuration		
Hands-on program simulation		

This course aims to equip the participants in basic programming and configuration of PLC Special I/O modules. Programming and monitoring are covered in detail, enabling the user to quickly diagnose and correct process faults on their PLC controlled installation. It is recommended that attendees have a good working knowledge of basic PLC concepts and CX Programmer, or have attended the PLC101 course.

PLC 301

PLC Networking

This is a two-day training course covering the wiring and programming of Omron's CPU Bus Units such as Ethernet, ControllerLink and Devicenet modules. This course also covers the configuration and setting of Serial PLC Link. CX-One software is provided for hands-on experience using CX-Integrator to setup and monitor communications networks.

COURSE DETAILS	DURATION	COST
Introduction to PLC CPU Bus Units: <ul style="list-style-type: none"> • Ethernet • ControllerLink • Devicenet • Serial PLC Link 	2 Days	USD 300/Pax In-House Training (Rate is exclusive of VAT)
System specification		
System wiring and configuration		
Network programming (CX-Integrator)		
Routing table setting		
Data Link setting		

The course is aimed at engineers who are familiar with Omron PLCs and software and who would like to learn more about PLC Networks. Upon completion of this course, the participants will learn how to configure Ethernet, ControllerLink and Devicenet networks to exchange large amounts of data at high speed. Discover how easy it is to access information from deep within multi-level networks. It is ideally suited to those who have attended the PLC101 training course.

HMI 101

Basic HMI

This is an application course using NS and NB Human-Machine Interface (HMI) and CX-Designer/NB-Designer software package. The course focuses on the integration of a PLC and HMI. The course is a mixture of theory and practical covering basic aspects of NS and NB operations. Full training equipment is provided to allow the attendee to complete a number of examples and problems.

COURSE DETAILS	DURATION	COST
Introduction to NS Series And NB Series Hardware range: <ul style="list-style-type: none"> Ports and communication options 	2 Days	USD 300/Pax In-House Training (Rate is exclusive of VAT)
NS and NB Programming: <ul style="list-style-type: none"> Menu setting Set-up projects and screens Design alarm and event displays 		
Interfacing with a PLC: <ul style="list-style-type: none"> Uploading and downloading application programs 		
Hands-on exercises and program simulation		

This course is intended at those who have a basic knowledge of the PLC, and who now want to understand or modify an 'NS' and 'NB' range of displays application. It is ideally suited to those who have previously attended an PLC101 training course, building on PLC knowledge to become proficient and confident in creating both PLC and NS and NB software solutions.

HMI 201

Advanced HMI (SCADA)

This course is designed to introduce the participants in PC based HMI known as SCADA. Using Omron's SCADA software, CX-Supervisor, the attendee is established to more advanced programming for a wide range PC-based HMI requirement. The course is a mixture of theory and practical covering basic aspects of SCADA operations.

COURSE DETAILS	DURATION	COST
Introduction to SCADA: <ul style="list-style-type: none"> • Applications • Functions 	2 Days	USD 300/Pax In-House Training (Rate is exclusive of VAT)
Introduction to CX-Supervisor Software: <ul style="list-style-type: none"> • System Configuration and Requirements • Programming 		
Alarm handling		
History/Event Display		
Supervisory control		
Program simulation		

This course is aimed to equip those who are involved in the monitoring and operation of machine controls. Using CX Supervisor, the attendee will build on basic PC-based HMI knowledge to become proficient and confident in creating SCADA solutions. It is recommended that attendees have a good working knowledge of HMI and PLC.

PLC 401

Lean Automation

This is a five-day training course will cover the latest innovation in automation –Lean Automation. This course is focused in utilizing Omron’s Lean Automation Pack which includes micro PLC (CP1E block-type PLC), programmable terminal (NB Series HMI), programming software, etc.

COURSE DETAILS	DURATION	COST
Basic PLC programming using CP1E PLC	5 Days	USD 750/Pax In-House Training (Rate is exclusive of VAT)
Configuration of CP1E High-speed Input and PLC Link		
Modbus RTU communication with the Frequency Inverters and Temperature Controllers		
Configuration of CP1E built-in Pulse Output with the Servo System		
CP1E and NB (HMI) communication including NB functions)		
Program simulation		

The primary objective of the course is to provide a comprehensive introduction to the Omron’s newest, cost-effective and simple way of automation known as Lean Automation. It is a launch to Omron’s range of Lean Automation products such as CP1E PLC and NB HMI. Upon completion of this course, attendees will take in the benefits of Lean Automation. The course is suitable for engineers and technicians who have no prior knowledge of PLCs and experienced programmers who wish to learn and explore Lean Automation.

MAC 101

SYSMAC Control Basic

The trainee is shown how to use all the features of Sysmac Studio, whilst being introduced to Sysmac controller hardware and programming techniques.

The course is primarily hands-on using dedicated training equipment incorporating our NJ Sysmac controller and associated hardware.

COURSE DETAILS	DURATION	COST
<p>1.1 Introduction to Sysmac controller technology:</p> <ul style="list-style-type: none"> • Explanation of Sysmac NJ and NX hardware. • An introduction to Ethernet/IP and EtherCAT networks. • Sysmac Studio programming software. • Controller configuration and set up. • Designing a project. • Exporting and importing your project. • Mapping of I/O and FINS memory settings. • Hands-on programming examples. • Creation and use of function blocks in ladder. <p>1.2. Interfacing with a Sysmac controller:</p> <ul style="list-style-type: none"> • Uploading & downloading application programs. • Monitoring variables using watch windows. <p>1.3. Off-line programming:</p> <ul style="list-style-type: none"> • Creating and modifying programs. • Using Sysmac simulator to test application code. <p>1.4. Modifying and forcing software elements</p> <p>1.5. Application of timers, counters and a range of basic Sysmac instructions.</p>	<p>2 Days</p>	<p>USD 300/Pax In-House Training (Rate is exclusive of VAT)</p>

The primary objective of the course is to provide a comprehensive introduction to the Omron Sysmac controller and the Sysmac Studio programming environment.

The course is suitable for engineers and technicians who have no prior knowledge of Sysmac and experienced programmers who wish to learn to use the features of Sysmac Studio.