

OMRON



AUTOMATION TRAINING 2019

Advanced Industrial Automation

Introduction to PLCs (2 Days)

- PLC System Components
- PLC System Configuration
- PLC Wiring
- Memory Matrix and Addressing
- Ladder Diagrams
- Introduction to CX-Programmer
- Program Development
- Maintenance and Troubleshooting
- Timers and Counters
- General Application Instructions

Advanced PLC Programming (2 Days)

- Numbering System
- Memory Architecture and Addressing
- CX-Programmer Overview
- Instruction Logic including
 - General Instructions,
 - Data Shifting,
 - Data Movement,
 - Data Conversion,
 - Data Comparison,
 - Arithmetic instructions,
 - Logic instructions
- Introduction to network
- Analog I/O
- Data Control Instructions
- Special Instructions

Function Block Programming (1 Day)

- What are Function Blocks and why use them?
- Using Omron-defined Functions Blocks and modifying them
- Creating Functions Blocks using Ladder Diagram
- Creating Function Blocks in Structured Text
- Error Handling in Function Blocks

Touch Screen Programming (1 Day)

- Separate courses for NS, NA and NB Series of Human Machine Interfaces (HMIs)
- Creating screens with lamps, touch switches and data entry objects
- Using analogue meters and other graphical objects

Network Communications (1 Day)

- General networking theory
- FINS protocol and routing tables
- CX-Integrator and Network Configurator software
- Communicating via SEND and RECV instructions
- Controller Link and Data Links
- EtherNet/IP - Explicit messaging
- EtherNet/IP - Implicit messaging

NJ Automation (2 Days)

- Introduction to NJ controller hardware
- Introduction to EtherCAT
- IEC 61131-3 style programming:
 - Programs,
 - Functions,
 - Function Blocks,
 - Tasks and cycle time

NJ Motion

- Introduction to Servo hardware
- Introduction to Servo parameters
- Setting up an Axis
- Test run operations
- Programming via PLCopen Function Blocks
 - Continuous moves,
 - Discrete moves, with blending,
 - Synchronous moves,
 - Coordinated moves
- Touch probe
- Error handling

NJ – NX Safety

- Introduction to Machine Safety and the associated standards (AS4024:1-2014)
- What is a risk assessment and how can it make a machine safe (ISO 12100:2010)
- Outline of safety componentry and how can they be used to achieve machine safety
- Safety programming according to safety categories (ISO 13849-1) using Functions Blocks
- Practical exercises involving actual safety devices
- Automatic program generation and reuse
- Function Block generation and reuse
- Reset facility (as specified in IEC 13849-1)
- Simple automatic test
- Online functional test
- Automatic Configuration and Restore

Introduction to Vision System (1 Day)

- What is Vision?
- Selecting Lighting and Lens
- Configuration of Controller
- Measurement Tools
- Setting up Scenes
- Setting up Measurement Windows and Tolerance
- Application Examples

Advanced Vision System (1 Day)

- Position Compensation
- Output Selection
- Wiring and I/O Setup
- Communications
- Use of Multiple Cameras
- USB or SD card (Back up Data/Images)
- Application Examples

Omron Training Schedule 2019

| Course | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Introduction to PLCs (2 days): \$990 + GST | | | | | | | | | | | | |
| Brisbane | | 5-6 | | 2-3 | | 3-4 | | 5-6 | | 1-2 | | 2-3 |
| Melbourne | 14-15 | | 4-5 | | 7-8 | | 1-2 | | 2-3 | | 11-12 | |
| Sydney | 22-23 | 18-19 | 18-19 | 23-24 | 21-22 | 11-12 | 15-16 | 13-14 | 16-17 | 15-16 | 18-19 | 10-11 |
| Advanced PLC Programming (2 days): \$990 + GST | | | | | | | | | | | | |
| Brisbane | | 7-8 | | 4-5 | | 5-6 | | 7-8 | | 3-4 | | 4-5 |
| Melbourne | 16-17 | | 6-7 | | 9-10 | | 3-4 | | 4-5 | | 13-14 | |
| Sydney | 24-25 | 20-21 | 20-21 | | 23-24 | 13-14 | 17-18 | 15-16 | 18-19 | 17-18 | 20-21 | 12-13 |
| Function Block Programming (1 Day): \$495 + GST | | | | | | | | | | | | |
| Brisbane | | 8 | | 5 | | 6 | | 8 | | 4 | | 5 |
| Melbourne | 17 | | 7 | | 10 | | 4 | | 5 | | 14 | |
| Sydney | 25 | 21 | 21 | | 24 | 14 | 18 | 16 | 19 | 18 | 21 | 13 |
| Touch Screen programming (1 Day): \$495 + GST | | | | | | | | | | | | |
| Brisbane | | 11 | | 8 | | 7 | | 9 | | 8 | | 6 |
| Melbourne | 18 | | 8 | | 13 | | 5 | | 6 | | 15 | |
| Sydney | 29 | | 22 | | 27 | | 19 | | 20 | | 22 | |
| Network Communications (1 Day): \$495 + GST | | | | | | | | | | | | |
| Brisbane | | 12 | | 9 | | 10 | | 12 | | 9 | | 9 |
| Melbourne | 21 | | 11 | | 14 | | 8 | | 9 | | 18 | |
| Sydney | 30 | | 25 | | 28 | | 22 | | 23 | | 25 | |
| NJ Automation (2 Days): \$990 + GST | | | | | | | | | | | | |
| Brisbane | | 12-13 | | 15-16 | 7-8 | | 2-3 | | 3-4 | | 7-8 | |
| Melbourne | | 19-20 | | 9-10 | | 4-5 | | 6-7 | | 1-2 | | 3-4 |
| Sydney | 15-16 | | 25-26 | | | 20-21 | | 20-21 | | 22-23 | | 17-18 |
| NJ Motion (2 Days): \$990 + GST | | | | | | | | | | | | |
| Brisbane | | 14-15 | | 17-18 | 9-10 | | 4-5 | | 5-6 | | 11-12 | |
| Melbourne | | 21-22 | | 11-12 | | 6-7 | | 8-9 | | 3-4 | | 5-6 |
| Sydney | 17-18 | | 27-28 | | | 24-25 | | 22-23 | | 24-25 | | 19-20 |
| NJ-NX Safety (2 Days): \$990 + GST | | | | | | | | | | | | |
| Brisbane | | 18-19 | | | 13-14 | | 8-9 | | 9-10 | | 13-14 | |
| Melbourne | | 25-26 | | 15-16 | | 11-12 | | 12-13 | | 7-8 | | 9-10 |
| Sydney | 21-22 | | | 1-2 | | 26-27 | | 26-27 | | 28-29 | | |
| Introduction to Vision System (1 Day): \$495 | | | | | | | | | | | | |
| Brisbane | 22 | | 19 | | 16 | | 11 | | 12 | | 18 | |
| Melbourne | | 27 | | 17 | | 13 | | 15 | | 10 | | 12 |
| Sydney | 8 | | 28 | | 30 | | 25 | | 26 | | 28 | |
| Advanced Vision System (1 Day): \$495 | | | | | | | | | | | | |
| Brisbane | 23 | | 20 | | 17 | | 12 | | 13 | | 19 | |
| Melbourne | | 28 | | 18 | | 14 | | 16 | | 11 | | 13 |
| Sydney | 9 | | 29 | | 31 | | 26 | | 27 | | 29 | |

To register, please visit www.omron.com.au/service_support/training

For custom, non-scheduled and product specific training - please contact Omron at 1300 766 766

Training Course Pricing:

| Course | Price (excluding GST) |
|-------------------------------|-----------------------|
| Introduction to PLCs | \$990 |
| Advanced PLC Programming | \$990 |
| Function Block Programming | \$495 |
| Touch Screen Programming | \$495 |
| Network Communications | \$495 |
| NJ Automation | \$990 |
| NJ Motion | \$990 |
| NJ – NX Safety | \$990 |
| Introduction to Vision System | \$495 |
| Advanced Vision System | \$495 |

NOTE: Omron reserves the right to cancel scheduled courses if the need arises. At least 3 persons must be registered in order to run the course.

Omron Training Course Benefits

Omron’s proven hands-on training shortens the learning curve of that using industrial automation equipment for the first time, as well as for experienced technicians learning the advanced functionality of an upgraded system.

Our industry experienced instructors use a combination of proven teaching techniques and hands-on real world application exercises to deliver focused information during the course. Proficiency tests are conducted at the end of the course and an Omron certificate of training completion stands for the satisfactory demonstration of learned skills.

Sysmac Training:

Omron's Sysmac system is an entire automation & control platform, delivering new possibilities for innovation in production & machines.

- Manufacturers gain money benefits, from productivity & efficiency improvements.
- Machine builders gain value in better products, from increased performance, advanced functionality, & new capabilities.
- Systems integrators save time & money, from simpler engineering, faster development & programming, & simplified learning - one software environment for an entire system, one vendor for complete support.

Sysmac Training allows you to realize to the potential of this leading technology & gain a competitive edge. Take a positive step into the future.



Benefits of Omron training courses:

Gain understanding, familiarity, knowledge and practical skills in automation. These courses are designed around your needs and tailored to your skills - this will enable you to improve your productivity and performance.

Training Courses Create:

- **Efficient production process**
- **Less downtime**
- **Greater return on automation investment**
- **Lower operating costs**
- **Value for money - high quality training at affordable prices**

Customised and on-site PLC Courses:

On-site, custom and interstate courses may be arranged. Please don't hesitate to call and discuss the details of possible dates and course content.

PLC Course Format:

Every attendee receives personal attention as there are never more than six students per class.

Who Should Attend:

- Engineers, electricians, technicians, maintenance staff, fitters and plant supervisors.
- Students attending the Advanced PLC programming course must have some basic knowledge of PLC programming. Knowledge of CX-Programmer is essential.

Prerequisites:

All attendees should be familiar with Windows operating systems and basic computer keyboard skills.

Course Registration Form

| Phone | Mail ... | Fax ... | Enrol... | |
|---|--|--|---------------------------|--|
| 100 000. allow our customer service officers to assist you | ... your booking form and payment to your nearest Omron office | ... your course registration form to your nearest Omron Office | NOW To Reserve YOUR Place | <i>Each student receives:</i> <ul style="list-style-type: none"> ● Individual use of Training Module ● Full set of reference notes ● Certificate on course completion. ● Morning and afternoon tea |
| Organization _____ Address _____ Suburb _____ Postcode _____ Company Size Staff: <20 <input type="checkbox"/> 20-50 <input type="checkbox"/> 51-100 <input type="checkbox"/> 100+ <input type="checkbox"/> 500+ <input type="checkbox"/> | | | | <i>A full lunch is catered for all courses one day and over.</i> |
| Approving Manager _____ Position _____ Phone _____ Fax _____ E-mail _____ | | | | Discounts: Discounts may be given for group bookings. |
| Student: Mr/Mrs/Ms/Miss _____ Position _____ Mr/Mrs/Ms/Miss _____ Position _____ Mr/Mrs/Ms/Miss _____ Position _____ Mr/Mrs/Ms/Miss _____ Position _____ | | | | Cancellations & Transfers: Any booking cancelled within 5 days of course commencement will incur a 50% cancellation fee. If a booking is cancelled within 24 hours of course commencement or if the student fails to attend, no refund will be provided. Transfers will be allowed subject to vacancies. |
| Please tick location: Melbourne <input type="checkbox"/> Sydney <input type="checkbox"/> Brisbane <input type="checkbox"/> Course Name: _____ Course Date: _____ | | | | <i>Other (Specify):</i> |
| How did you hear about Omron's training courses? Internet <input type="checkbox"/> Distributor <input type="checkbox"/> | | | | |
| Payment Details: | | | | Course Hours |
| Order Number: Please accept as payment my order number: _____ Cheque: I wish to pay by cheque: * <input type="checkbox"/> Fee enclosed: \$ _____ Credit Card: Please charge my: Bankcard <input type="checkbox"/> Mastercard <input type="checkbox"/> Visa <input type="checkbox"/> Number _____ CSV _____ Cardholder Name: _____ Signature: _____ Expiry Date: _____ / ____ / ____ | | | | Full day courses Start _____ Lunch _____ Finish _____ _____ 12:00pm 4:00pm Half day courses Start _____ Finish 100pm |

- Cheques should be made payable to Omron Electronics Pty Ltd and posted to the office where training is to be conducted.
- Payment is to be made before the course commences and within 7 days of an invoice date.