

TRAINING

Prospectus



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WHY TRAIN WITH MITSUBISHI ELECTRIC?

Mitsubishi Electric has consistently played a leading role in providing professional training in the industrial automation industry. We recognise the importance of keeping abreast of fast moving technology and offer a schedule of up-to-date training courses from our team of professional engineers.



We take great care in providing consistent, high quality training to a wide variety of abilities and industries. Our courses provide up-to-date knowledge to operational staff in key positions in all spheres of manufacturing and process industries. Courses are designed to provide industrial automation content knowledge in a format to suit everyone. Our Customer Technology Centre (CTC) enables our customers to see how our products perform in a dedicated environment.

TRAINING VENUES



HEAD OFFICE – HATFIELD

Head Office is used for the majority of training courses. It is situated on the outskirts of Hatfield and offers an ideal training environment. The site has fully equipped training suites and a Customer Technology Centre which is a dedicated Environment for customers to see our working products and solutions.

REGIONAL AUTOMATION CENTRES – WAKEFIELD

The Regional Automation Centre in Wakefield offers easier accessibility for Northern based customers. The decision to run courses at the Regional Automation Centre is based on demand.

SCOTLAND

Our training facility in Livingston, West Lothian is situated within the Mitsubishi Air Conditioning Equipment Production facility and is convenient for Customers in Scotland and northern England.

Please contact us for availability of Courses at this location.

DISTRIBUTION PARTNERS:

Courses can also be run in the following locations:

- BLACKBURN at LC Automation Limited.
- LEICESTER at Controls and Drives Limited.

The decision to run courses at these locations is based on demand.

CUSTOMER'S SITE

Courses can be delivered at customers sites if there is sufficient demand.

CLASS SIZE

The maximum class size is 8 and the minimum is 3. A maximum size of 6 applies to courses run at customer's own site.

MATERIALS

All necessary training materials are supplied by Mitsubishi.

DURATION

Standard courses are either 1 day or 2 day duration. All courses start at 9:30am and finish at approximately 4:30pm. Start and finish times can be adjusted for courses run at customer's own site.

CATERING

Refreshments are available throughout the day. Lunch is included in the price of the course.

CONTACTS

For more information call 01707 288 780, fax 01707 278 695, email ctctraining.dept@meuk.mee.com or see gb3a.mitsubishielectric.com/fa/en/service/training

CERTIFIED ENGINEER

The Mitsubishi Certified Engineer Programme is designed to generate a Group of competent engineers, certified in Mitsubishi Automation equipment

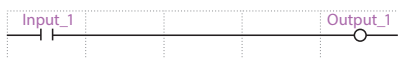
iQ-R PLC INTRODUCTION

This course provides training to enable delegates to select suitable PLC hardware and to create reliable programs for simple applications. Program design techniques are studied and the creation of sequences is demonstrated with examples of alternative approaches. Good programming practice is explored to identify and avoid commonly encountered programming mistakes and to ensure a program is both robust and easy to follow.

Configuration of the PLC parameters is covered to ensure that a project created in GX Works is complete in the important aspects.

Two courses are available:

Simple Mode:



Structured Mode:



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Selecting suitable hardware and building up a PLC
- Choosing the best approach for creating a program for a simple application
- Designing a program to respond to inputs and correctly control outputs
- Testing a program in a PLC and making edits.
- Configuring settings in the CPU
- Annotating a program

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed a Beginners' course prior to choosing this course

Some experience of industrial control systems would be an advantage.



PRODUCTS USED

Special purpose iQ-R PLC rig and GX Works.

SUBJECTS

- Hardware Selection
- Module placement and addressing
- Setting up GX Works
- Creating programs for simple applications
- Basic program elements
- Designing a sequence using timers
- Programming pitfalls
- Creating and testing a program
- Alternative solutions
- Editing a program offline
- PLC configuration and parameters
- Program descriptive devices

DURATION

2 Days

WHO SHOULD ATTEND

This course has been designed for those individuals with a Beginner level of knowledge and experience of iQ-R PLCs and programming and who want to develop to Introductory level

RELATED COURSES

Completion of this course will prepare delegates for the Intermediate course

iQ-R PLC INTERMEDIATE

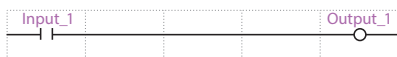
This course provides training to enable delegates to use features of GX Works to speed up the process of creating programs including making any size modifications either for design changes or errors.



Features of the PLC which can also be used to speed up the process of creating programs are studied together with techniques for creating a clear structure and flow in a program

Two courses are available:

Simple Mode:



Structured Mode:



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Using features of GX Works to speed up the program creation process
- Using features of GX Works to simplify the program modification process
- Using features of GX Works to simplify program debugging
- Using features of the PLC to speed up the program creation process
- Using features of the PLC to help create a program structure

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed the Introductory course prior to choosing this course

Experience of industrial control systems would be an advantage

PRODUCTS USED

Special purpose iQ-R PLC rig and GX Works.

SUBJECTS

- GX Works Help tool
- Configuration short-cuts
- Converting or Rebuilding
- Online program change
- Finding and Replacing
- Program monitoring
- Debugging
- Special Coils and Special Registers
- Digit Specification
- Designing structured sequences
- Reading from a PLC

DURATION

2 Days

WHO SHOULD ATTEND

This course has been designed for those individuals with an Introductory level of knowledge and experience of iQ-R PLCs and programming and who want to develop to Intermediate level.

RELATED COURSES

Completion of this course will prepare delegates for the Advanced course.

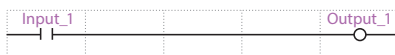
iQ-R PLC ADVANCED

This course provides training to enable delegates to configure and use advanced features of a PLC and create clearly structured programs able to perform complex operations including maths calculations.



Two courses are available:

Simple Mode:



Structured Mode:



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Selecting and configuring Intelligent Function Modules
- Accessing and controlling Intelligent Function Modules
- Setting up labels including Structured Data Types
- Using arrays and/or indexes for storing and retrieving data
- Preventing unauthorised access to the program and/or PLC
- Optimising the memory areas in the CPU
- Using Program Execution Types to create a well-structured program
- Data and number manipulation

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed the Intermediate course prior to choosing this course

Experience of industrial control systems would be an advantage

PRODUCTS USED

Special purpose iQ-R PLC rig and GX Works.

SUBJECTS

- Intelligent module selection
- Intelligent module configuration and addressing
- Intelligent Module Labels
- Changing the Intelligent module address
- Program Labels and Structured Data Types
- Arrays and Indexing
- Controlling access
- Memory management
- Program execution types
- Data manipulation
- Numerical value manipulation

DURATION

2 Days

WHO SHOULD ATTEND

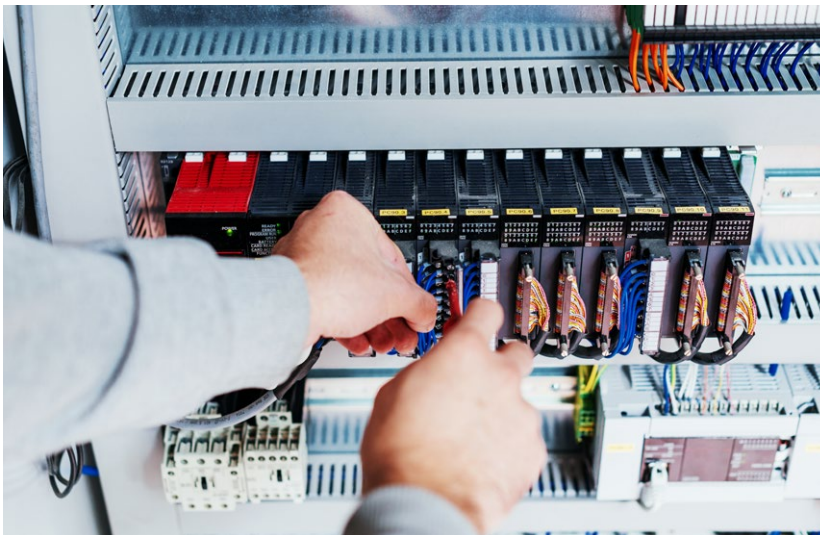
This course has been designed for those individuals with an Intermediate level of knowledge and experience of iQ-R PLCs and programming and who want to develop to Advanced level.

RELATED COURSES

Completion of this course will prepare delegates for the Expert level courses.

iQ-R PLC MAINTENANCE

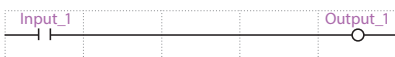
This course provides training to enable delegates to quickly establish the status of a PLC which is reported as 'failed' and determine if the 'failure' is caused externally or internally.



Procedures are given for finding the reason why a PLC has stopped working whether an important signal is missing or there has been a genuine fault. The technique for re-writing the program to the PLC is given together with a procedure for making very minor changes when there is the need to 'get out of jail'.

Two courses are available:

Simple Mode:



Structured Mode:



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Verifying the PLC is correctly assembled and connections are sound
- Using the module indicators to confirm the PLC status
- Confirming inputs are fully operational
- Using the programming tool to check the behaviour of the program
- Using the programming tool to restore the program in the PLC
- Swapping a blown input or output for a spare
- Checking the existence of CPU errors
- Checking outputs are fully operational

ENTRY REQUIREMENTS

It is recommended that delegates are confident in safely making measurements of Voltage, Current and Resistance in electrical circuits.

Experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose iQ-R PLC rig and GX Works.

SUBJECTS

- Correct handling of modules and assembly of PLC
- Understanding connections
- Fault finding step-by-step
- Status Indicators explained
- Making measurements at inputs
- Starting the programming tool
- Finding problems in the program
- Monitoring the program
- Re-writing the program to the PLC
- Swapping a blown input or output
- Checking errors
- Checking outputs
- Routine maintenance

DURATION

1 Day

WHO SHOULD ATTEND

This course has been designed for those who are involved on a day to day basis with maintaining control systems based around iQ-R PLC

RELATED COURSES

Completion of this course will prepare delegates for the Beginner level course

INTRODUCTION TO iQ WORKS

Based on the iQ Works software suit and specifically the iQ Navigator software product this course runs through the creation of a project that consists of a PLC and GOT HMI applications.



Delegates will learn how to configure a basic multi-hardware platform system and exploit the shared label database facilities.

Two courses are available; iQ-R PLC and Q PLC.

LEARNING OUTCOMES

At the end of this course delegates are expected to be able to manage a multi-hardware platform system with the iQ navigator software.

ENTRY REQUIREMENTS

Previous experience of Mitsubishi PLC and GOT (HMI) programming is required.

PRODUCTS USED

This course uses the iQ Works software suit in conjunction with dedicated PLC hardware/software simulator systems and GOT hardware/software simulator systems.

SUBJECTS

- iQ concepts
- The Navigator
- Building a PLC system
- Building a GOT system
- Introduction to GX Works PLC software
- Introduction to GT Designer GOT software
- Project label database management
- The PLC program
- The GOT program

DURATION

1 Day

WHO SHOULD ATTEND?

This training course is aimed at delegates that have previous Mitsubishi PLC and GOT HMI experience.

RELATED COURSES

- PLC Introduction and Advanced
- IEC Programming
- GOT HMI

iQ-F PLC INTRODUCTORY TRAINING

This course provides training to enable delegates to select suitable PLC hardware and to create reliable programs for simple applications. Program design techniques are studied and the creation of sequences is demonstrated with examples of alternative approaches. Good programming practice is explored to identify and avoid commonly encountered programming mistakes and to ensure a program is both robust and easy to follow. Configuration of the PLC parameters is covered to ensure that a project created in GX Works is complete in the important aspects.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Selecting suitable hardware and building up a PLC
- Choosing the best approach for creating a program for a simple application
- Designing a program to respond to inputs and correctly control outputs
- Testing a program in a PLC and making edits.
- Configuring settings in the CPU
- Annotating a program

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed a Beginners' course prior to choosing this course

Some experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose iQ-F PLC rig and GX Works.

SUBJECTS

- Hardware Selection
- Module placement and addressing
- Setting up GX Works
- Creating programs for simple applications
- Basic program elements
- Designing a sequence using timers
- Programming pitfalls
- Creating and testing a program
- Alternative solutions
- Editing a program offline
- PLC configuration and parameters
- Program descriptive devices

DURATION

2 Days

WHO SHOULD ATTEND?

This course has been designed for those individuals with a Beginner level of knowledge and experience of iQ-F PLCs and programming and who want to develop to Introductory level.

RELATED COURSES

Completion of this course will prepare delegates for the Intermediate course.

iQ-F PLC

INTERMEDIATE TRAINING

This course provides training to enable delegates to use features of GX Works to speed up the process of creating programs including making any size modifications either for design changes or errors. Features of the PLC which can also be used to speed up the process of creating programs are studied together with techniques for creating a clear structure and flow in a program.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Using features of GX Works to speed up the program creation process
- Using features of GX Works to simplify the program modification process
- Using features of GX Works to simplify program debugging
- Using features of the PLC to speed up the program creation process
- Using features of the PLC to help create a program structure

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed the Introductory course prior to choosing this course.

Experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose iQ-F PLC rig and GX Works.

SUBJECTS

- GX Works Help tool
- Configuration short-cuts
- Converting or rebuilding
- Online program change
- Finding and replacing
- Program monitoring
- Debugging
- Special coils and special registers
- Digit specification
- Designing structured sequences
- Reading from a PLC

DURATION

2 Days

WHO SHOULD ATTEND?

This course has been designed for those individuals with an Introductory level of knowledge and experience of iQ-F PLCs and programming and who want to develop to Intermediate level.

RELATED COURSES

Completion of this course will prepare delegates for the Advanced course.

iQ-F PLC ADVANCED TRAINING

This course provides training to enable delegates to maximise the use of the PLC by using the built-in features including Analogue Channels but also add further modules. Techniques are explored which use GX Works and the PLC functionality to speed up the process of creating programs which have a clear structure and flow.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Selecting and configuring Intelligent Function Modules
- Configuring built-in Analogue Channels and High Speed Inputs
- Setting up Labels including Structured Data Types
- Using Arrays and/or Indexes for storing and retrieving data
- Preventing unauthorised access to the program and/or PLC
- Optimising the memory areas in the CPU
- Using Program Execution Types to create a well-structured program
- Data and number manipulation

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed the Intermediate course prior to choosing this course.

Experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose iQ-F PLC rig and GX Works.

SUBJECTS

- Intelligent module selection and configuration
- Built-in analogue channels
- High speed inputs
- Module labels
- Program labels and structured data types
- Arrays and indexing
- Controlling access
- Memory management
- Program execution types
- Data manipulation
- Numerical value manipulation

DURATION

2 Days

WHO SHOULD ATTEND?

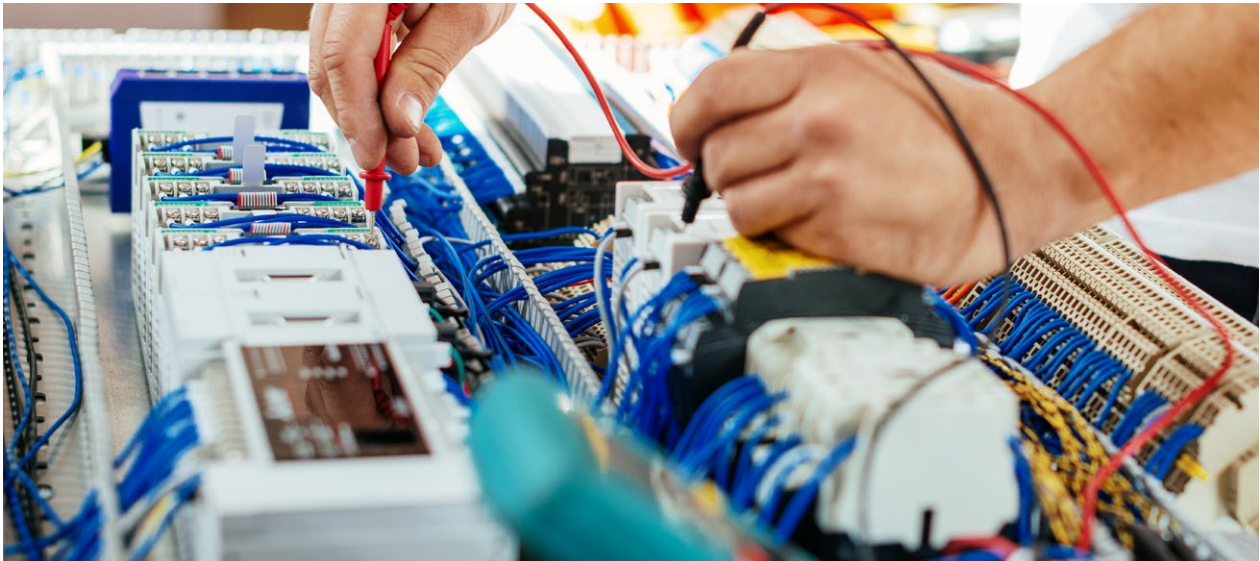
This course has been designed for those individuals with an Intermediate level of knowledge and experience of iQ-F PLCs and programming and who want to develop to Advanced level.

RELATED COURSES

Completion of this course will prepare delegates for the Expert level courses.

iQ-F PLC MAINTENANCE TRAINING

This course provides training to enable delegates to quickly establish the status of a PLC which is reported as 'failed' and determine if the 'failure' is caused externally or internally. Procedures are given for finding the reason why a PLC has stopped working whether an important signal is missing or there has been a genuine fault. The technique for re-writing the program to the PLC is given together with a procedure for making very minor changes when there is the need to 'get out of jail'.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Verifying the PLC is correctly assembled and connections are sound
- Using the module indicators to confirm the PLC status
- Confirming inputs are fully operational
- Using the programming tool to check the behaviour of the program
- Using the programming tool to restore the program in the PLC
- Swapping a blown input or output for a spare
- Checking the existence of CPU errors
- Checking outputs are fully operational

ENTRY REQUIREMENTS

It is recommended that delegates are confident in safely making measurements of Voltage, Current and Resistance in electrical circuits.

Experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose iQ-F PLC rig and GX Works.

SUBJECTS

- Correct handling of modules and assembly of PLC
- Understanding connections
- Fault finding step-by-step
- Status Indicators explained
- Making measurements at inputs
- Starting the programming tool
- Finding problems in the program
- Monitoring the program
- Re-writing the program to the PLC
- Swapping a blown input or output
- Checking errors
- Checking outputs
- Routine maintenance

DURATION

1 Day

WHO SHOULD ATTEND?

This course has been designed for those who are involved on a day to day basis with maintaining control systems based around iQ-F PLC.

RELATED COURSES

Completion of this course will prepare delegates for the Beginner level course.

Q-PLC INTRODUCTION

This course is an introduction to the Mitsubishi Q PLC products. The course explains the basic hardware structure of the Q Mitsubishi PLC products and introduces the first basic steps of PLC programming using the GX Works PLC programming software in "simple mode" with labels.



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to create and understand basic PLC programs.

ENTRY REQUIREMENTS

No Previous PLC knowledge is required however previous Mitsubishi or competitor PLC knowledge would be useful. An understanding of basic electrical principles and number bases would be an advantage.

PRODUCTS USED

This course uses dedicated Q PLC simulator system hardware together with GX Works programming software.

SUBJECTS

- PLC hardware
- GX Works software in simple mode
- Logic principles
- Creating a ladder diagram
- Program testing
- Program transfer (up / down loading)
- Simple application programmes
- Timers and counters
- Simulation and monitoring
- Converting sequences into code
- PLC parameters
- Finding / replacing
- Program flow control

DURATION

2 Days

WHO SHOULD ATTEND?

This training course is aimed at delegates that have either no previous PLC experience or very limited experience.

RELATED COURSES

- Q-PLC Advanced Training
- IEC PLC Programming using GX Works structured mode

Q PLC ADVANCED

Based around the GX Works software in “simple mode” with labels, the course will run through the advanced features of the Q PLCs. Concentrating on the applied instruction set, delegates will be able to use mathematical functions, interfacing with analogue units, use complex instructions and many more functions. Delegates are given many practical exercises to solve.



LEARNING OUTCOMES

At the end of this course delegates are expected to be competent PLC programmers with an understanding of complex PLC programming.

ENTRY REQUIREMENTS

Ideally delegates need previous experience with Mitsubishi PLCs (or to have attended the PLC Introduction training course) however an understanding of other manufacturers' PLC products will help. An understanding of basic electrical principles is required.

PRODUCTS USED

This course uses dedicated Q PLC simulator system hardware together with GX Works programming software.

SUBJECTS

- Analogue module selection and configuration
- Structured data types
- Accessing data ranges – arrays and indexes
- Project security
- Program execution types
- Data manipulation and maths operations
- Diagnostics

DURATION

2 Days

WHO SHOULD ATTEND?

This training course is aimed at delegates that have previous Mitsubishi PLC experience or at minimum experience of other PLC equipment.

RELATED COURSES

- IEC PLC Programming using GX Works
- Networking

FX3 PLC INTRODUCTION

This course is an introduction to the Mitsubishi FX3 PLC Product. The course explains the basic hardware structure of the PLC and introduces the first steps of programming using GX Works PLC programming software in 'simple mode' with Labels



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to create and understand basic PLC programs.

ENTRY REQUIREMENTS

No previous PLC knowledge is required however previous Mitsubishi or competitor PLC knowledge would be useful. An understanding of basic electrical principles would be an advantage.

PRODUCTS USED

This course uses dedicated FX3U PLC simulator system hardware together with GX Works programming software.

SUBJECTS

- PLC hardware
- System addressing
- Basic ladder logic
- Programming software
- GX Works software introduction
- Creating a project
- Online operations
- Program documentation
- PLC parameters
- Timers and counters

DURATION

2 Days

WHO SHOULD ATTEND?

This training course is aimed at delegates that have either no previous PLC experience or very limited experience

RELATED COURSES

FX3U PLC Advanced

FX3U PLC ADVANCED

Based around the GX Works Software in 'simple mode' with Labels, the course will run through the advanced features of the FX3U PLC. Concentrating on the applied instruction set, delegates will be able to use mathematical functions, interfacing with analogue units, use complex instructions and many more functions.



LEARNING OUTCOMES

At the end of this course delegates are expected to be competent PLC programmers with an understanding of complex PLC programming.

ENTRY REQUIREMENTS

Ideally delegates need previous experience with Mitsubishi PLCs (or to have attended the FX3 Introduction training course). However, an understanding of other manufacturers' PLC products will help. An understanding of basic electrical principle is required.

PRODUCTS USED

This course uses dedicated FX3U PLC simulator system hardware together with GX Works programming software.

SUBJECTS

- Expansion adapters and intelligent modules
- High speed inputs
- Structured data types
- Accessing data ranges – arrays and indexes
- Project security
- Numeric data handling and manipulation
- Maths operations and data processing
- PLC diagnostics

DURATION

2 Days

WHO SHOULD ATTEND?

This training course is aimed at delegates that have previous Mitsubishi PLC experience or have completed the FX3 Introduction training course.

STRUCTURED PROGRAMMING (IEC)

Based on the GX Works software in structured mode, the course will run through the functions and program editors of the software. Concentrating on the IEC 61131-3 standard, delegates will be able to create programmes and become confident using this package and exploiting the feature of IEC programming including items such as Functions & Function blocks, complex data types, etc.



LEARNING OUTCOMES

At the end of this course delegates are expected to have a detailed understanding of the IEC 61131-3 programming standard and to be able to implement PLC programs to this standard.

ENTRY REQUIREMENTS

Delegates need previous experience of Mitsubishi PLC programming and it would be advantageous to have some experience of other structured programming environments.

PRODUCTS USED

This course uses dedicated Q PLC simulator system hardware together with GX Works programming software in structured mode.

SUBJECTS

- Introduction to the IEC 61131-3 standard
- Introduction to the GX Works programming environment
- Program structuring
- Variable types and definitions
- Programming languages
- Compiling
- Functions
- Function blocks
- Monitoring
- Libraries
- Backup & restore

DURATION

2 Days

WHO SHOULD ATTEND?

This training course is aimed at delegates that have previous Mitsubishi PLC experience and ideally student that have previously attended Mitsubishi PLC training.

CC-LINK IE FIELD

This course provides an introduction and overview of a CC-Link IE Field network including available Topologies and specifications. Typical compatible products which can act as stations while the PLC is designated the Master are reviewed. Guidelines for addressing each station and mapping data with the Master are given.



An example of a small scale implementation is worked through and all the necessary aspects of the configuration are thoroughly explored, including fault finding.

Two courses are available: iQ-R PLC based and Q PLC based.

LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Selecting suitable hardware and building a network with the optimum topology
- Understanding station types, station addressing, available data and mapping methods
- Designing and testing a configuration with the applicable programming tool

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed an Advanced level course prior to choosing this course.

Experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose PLC rig and GX Works.

SUBJECTS

- Network features
- Topology and specifications
- Compatible hardware
- Station types and data mapping
- Creating and testing a configuration
- Monitoring and diagnostics
- Station parameters

DURATION

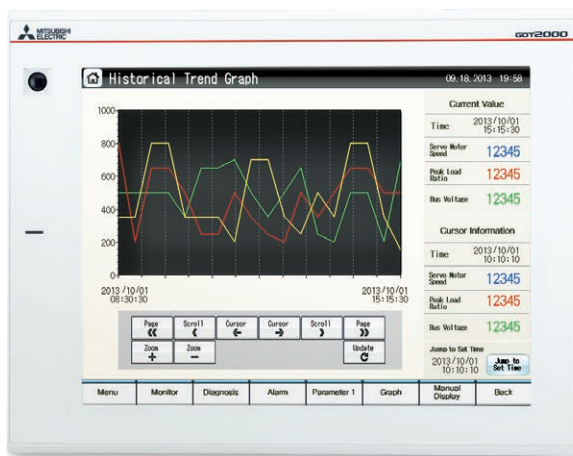
1 Day

WHO SHOULD ATTEND?

This course has been designed for those individuals who have an Advanced level of knowledge and experience of PLCs and programming and who want to supplement that with a study of networking.

GOT2000 HMI INTRODUCTORY TRAINING

This course provides training to enable delegates to select a suitable HMI for an application and to create and develop a simple project to provide controls and interaction with a PLC program. Three courses are available based on the PLC type: iQ-R, iQ-F and Q.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Selecting an HMI with size, features and interfaces to suit the application
- Creating a project with simple controls, inputs, indicators and displays
- Configuring the HMI and PLC for the connection between them
- Modifying a project and writing it to the HMI

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed a Beginners' course prior to choosing this course.

Some experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose GOT2000 HMI rig, PLC rig and GT Designer.

SUBJECTS

- GOT2000 selection techniques
- Starting and setting up GT Designer programming tool
- Creating a project
- Understanding simple control and indicator devices
- Understanding numerical input and display devices
- Connecting the HMI and PLC
- Writing the project to the HMI
- Adding screens

DURATION

2 Days

WHO SHOULD ATTEND?

This course has been designed for those individuals with a Beginner level of knowledge and experience of GOT2000 HMIs and who want to develop to Introductory level.

RELATED COURSES

Completion of this course will prepare delegates for the Intermediate course.

GOT2000 HMI INTERMEDIATE TRAINING

This course provides training to enable delegates to develop larger HMI projects having more controls and greater interaction with the PLC program. Enhancing the operator's use of the HMI is explored using Alarms, Recipes and access control.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Using features of GT Designer to speed up the project creation process
- Using features of GT Designer to simplify project navigation
- Using features of objects to substitute PLC program operations
- Using features of the HMI to enhance operator interaction

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed a Beginners' course prior to choosing this course.

Some experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose GOT2000 HMI rig, PLC rig and GT Designer.

SUBJECTS

- GT Designer Help tool
- Naming screens
- Displaying object details
- Features of devices complementing the PLC program
- Limiting, scaling and manipulating numbers
- Changing object appearance on demand
- Handling simple alarms
- Simple Recipe control
- Access control
- Simulating the project

DURATION

2 Days

WHO SHOULD ATTEND?

This course has been designed for those individuals with an Introductory level of knowledge and experience of GOT2000 HMIs and who want to develop to Intermediate level.

RELATED COURSES

Completion of this course will prepare delegates for the Advanced course.

GOT2000 HMI ADVANCED TRAINING

This course provides training to enable delegates to develop larger HMI projects and provide operators with controls and information displays necessary for complex processes.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Using the PLC program to trigger messages to appear on the HMI
- Preventing unauthorised access to the GT Designer project
- Using the alarm feature to convey status and provide instructions for remedial action
- Using Trends to monitor and display information over time
- Setting up controls for advanced recipe use
- Controlling which operators have access to which screens

ENTRY REQUIREMENTS

It is recommended that delegates have at least completed an Intermediate course prior to choosing this course.

Some experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose GOT2000 HMI rig, PLC rig and GT Designer.

SUBJECTS

- Screen switching techniques
- Overlap and superimpose windows
- Controlling access to the project
- User alarms
- Advanced recipe control
- Trending
- Controlling access to HMI screens

DURATION

2 Days

WHO SHOULD ATTEND?

This course has been designed for those individuals with an Intermediate level of knowledge and experience of GOT2000 HMIs and who want to develop to Advanced level.

RELATED COURSES

Completion of this course will prepare delegates for Expert level courses.

GOT2000 HMI MAINTENANCE TRAINING

This course provides training to enable delegates to quickly establish the status of an HMI which is reported as failed and determine if the failure is caused externally or internally. Procedures are given for finding the reason why an HMI is not operating correctly and the items that require checking on a regular basis to ensure the HMI continues to function.



LEARNING OUTCOMES

At the completion of this training delegates will be competent in the following disciplines:

- Verifying the HMI is correctly installed and connections are sound
- Checking the HMI starts up correctly
- Using the programming tool to verify the project in the HMI
- Using the programming tool to check for errors in the HMI
- A knowledge of the items requiring regular inspection

ENTRY REQUIREMENTS

It is recommended that delegates are confident in safely making measurements of Voltage, Current and Resistance in electrical circuits.

Experience of industrial control systems would be an advantage.

PRODUCTS USED

Special purpose GOT2000 HMI rig, PLC rig and GT Designer.

SUBJECTS

- Correct handling and assembly of HMI and options
- Understanding connections
- Fault finding step-by-step
- Status indicators explained
- Starting the programming tool
- Verifying the project
- Monitoring the HMI status
- Periodic inspection
- Routine maintenance

DURATION

1 Day

WHO SHOULD ATTEND?

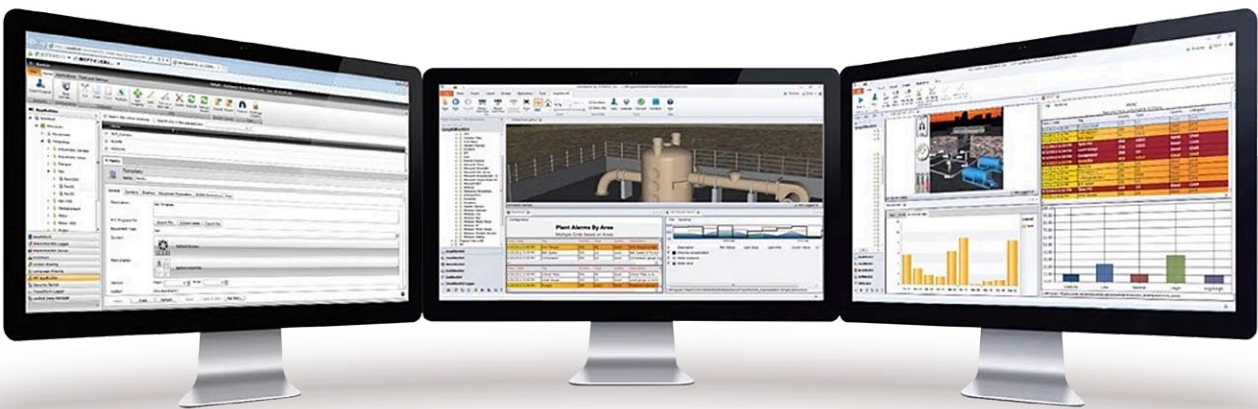
This course has been designed for those who are involved on a day to day basis with maintaining control systems use GOT2000 HMI.

RELATED COURSES

Completion of this course will prepare delegates for the Beginner level course.

MAPS SCADA

The course gives an insight into MAPS SCADA project design and configuration techniques. This “hands on” course will cover topics such as plant control, data collection, alarms, trending and reporting.



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to create from scratch a functional MAPS SCADA system.

ENTRY REQUIREMENTS

Delegates need to have previous experience with either Mitsubishi or other manufacturers' PLC products. An understanding of networking and databases would also be beneficial. Delegates also need a good working knowledge of Windows operating systems and an appreciation of programming environments such as .NET, VB, C#.

PRODUCTS USED

This course uses the dedicated PLC training system and the MAPS SCADA software.

SUBJECTS

- Licencing
- Agent (tag) creation and management
- Mimic development
- PLC communications / OPC communications & drivers
- Managing projects
- Alarms
- Trending
- Log data
- Devices
- Client server
- Alarm & event analysis
- Auditing
- Smart Client user interface
- Customer objects

DURATION

2 Days

WHO SHOULD ATTEND?

This training course is aimed at delegates that have no previous SCADA experience but knowledge of databases computer programming is beneficial.

RELATED COURSES

- MAPS
- 3rd party VB.Net or C# programming

LD77 SIMPLE MOTION

Based on the LD77 Simple Motion module, the course teaches delegates how to create a simple motion control system from scratch. This includes basic physical configuration with wiring and SSCNet connections followed by using GX Works software with MR Configurator2 programming tool to parameterise a servo system and create simple motion control systems.



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to create, maintain, and fault find a basic LD77 based simple motion system.

ENTRY REQUIREMENTS

Delegates need to have basic Servo system experience or have attended the Mitsubishi Servo Fundamentals training course. An understanding of basic Q series PLC programming is also required.

PRODUCTS USED

This course uses dedicated hardware Servo demonstration cases, together with an L series PLC demo unit containing an LD77 simple motion modules and MR Configurator2 within GX Works software.

SUBJECTS

- Introduction to simple motion systems on L series PLCs
- System connectivity and SSCNet networking
- MR Configurator2 within GX Works software
- Parameter setting and creating positioning profiles
- Origin point setting
- Advanced positioning
- Dedicated commands
- Synchronous control
- CAMs
- Monitoring and trouble shooting

DURATION

1 Day

WHO SHOULD ATTEND?

This training course is aimed at delegates that have previous servo experience or that have attended the Mitsubishi servo introduction training course. No previous motion control experience is required.

RELATED COURSES

- PLC Advanced Programming
- Q Series QD75 Positioning

VARIABLE SPEED DRIVE INTRODUCTION

This course introduces the basic principles of AC motors and AC inverter theory. It involves practical use of our latest Variable Speed Drives to gain basic set-up and diagnostic experience that can be used on the complete range of Mitsubishi variable speed drives. The Mitsubishi FR Configurator software is also introduced.



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to set-up and wire variable speed drives with basic settings and to understand AC motor theory.

ENTRY REQUIREMENTS

Delegates need have no previous experience of variable speed drive products. An understanding of basic electrical principles would be an advantage.

PRODUCTS USED

This course uses the latest variable speed drive simulator systems hardware.

SUBJECTS

- 3 phase motor theory
- 3 phase motor rules
- Wiring – star and delta
- Mechanical properties of 3 phase motors
- How a variable speed drive works
- Basic parameter settings
- Several practical exercises
- Introduction to FR Configurator software

DURATION

1 Day

WHO SHOULD ATTEND?

This training course is aimed at students that have either no previous variable speed drive experience or very limited experience.

RELATED COURSES

- Servo Introduction
- QD75 Positioning
- LD77 Simple motion

SERVO FUNDAMENTALS

This servo training course introduces the concept and principles of the operation of Mitsubishi servo systems including amplifiers and motors. This includes SSCNet networking connectivity plus MR Configurator software. Consideration is also given to mechanical systems.



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to understand the basic components of a servo and how a servo works together with how to use the MR Configurator software.

ENTRY REQUIREMENTS

Delegates need no previous experience of servo systems. An understanding of basic electrical and mechanical principles is required.

PRODUCTS USED

This course uses dedicated servo demonstration cases together with the MR Configurator software.

SUBJECTS

- Definition of servo systems
- Principles of operation
- Wiring and connections
- Type A & B systems
- SSCNet networking
- MR Configurator software
- Fault finding and diagnostics

DURATION

1 Day

WHO SHOULD ATTEND?

This training course is aimed at delegates that have either no previous servo experience or very limited experience.

RELATED COURSES

- PLC Introductory training
- LD77 simple motion

ROBOT PROGRAMMING

This training course aims to teach the delegates how to create working robot applications with consideration for the physical environment, safety, and the work piece. Delegates learn how to program using both a teach pendant as well as the RT Toolbox software environment. Vision systems are not included as part of this training and neither is direct integration with an iQ PLC system.



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to create, deploy, maintain, and fault find a working robot application program.

ENTRY REQUIREMENTS

Delegates do not require any previous experience however an appreciation of programming environments such as BASIC, VB, C, C#, etc would be an advantage.

PRODUCTS USED

This course uses a sample robot arm and controller however for most of the work the simulation environment within the RT Toolbox software is used.

SUBJECTS

- Teach box
- Basic programming using a teach box
- RT Toolbox software
- Advance programming
- Basic instructions & data types
- Programming & commands
- Simulation
- Gripper commands
- Parameters
- Fault finding

DURATION

2 Days

WHO SHOULD ATTEND?

This training course is aimed at delegates that have previous robot programming experience.

RELATED COURSES

- PLC Introductory training
- PLC Advance programming

ROBOT SERVICING

Based on the Mitsubishi Robot maintenance manual, this training course concentrates on the routine scheduled maintenance activities required for all Mitsubishi robots. This includes items such as changing batteries, adjusting belts, greasing, etc.



LEARNING OUTCOMES

At the end of this course delegates are expected to be able to create a maintenance regime for robots and to be able to carry out this work.

ENTRY REQUIREMENTS

Delegates do not require any previous experience however an understanding of general mechanical maintenance work would be an advantage.

PRODUCTS USED

This course uses an example robot arm and controller together with a teach pendant.

SUBJECTS

- Robot construction
- Teach pendants
- Robot operation
- Maintenance schedule
- Adjusting belts
- Changing batteries
- Origin setting
- Fault finding
- Jogging

DURATION

1 Day

WHO SHOULD ATTEND?

This training course is aimed at delegates that have no previous robot maintenance experience.

RELATED COURSES

- Robot programming
- PLC Introductory training
- PLC Advanced training

BESPOKE TRAINING COURSES

If the course you are looking for is not listed, please contact us to discuss your requirements. We have wealth of experience and material which we can draw on to create bespoke courses specifically for your needs.



TRAINING COURSES AVAILABLE ON DEMAND

| Course title | Duration | Description |
|-------------------------------|----------|---|
| FX PLC Introduction | 2 days | Previous version of the new PLC Introduction course but using only FX PLCs and GX Developer software. |
| FX PLC Advanced | 2 days | Previous version of the new PLC Advanced course but using only FX PLCs and GX Developer software. |
| Q PLC Introduction | 2 days | Previous version of the new PLC Introduction course but using only Q PLCs and GX Developer software. |
| Q PLC Advanced | 2 days | Previous version of the new PLC Advanced course but using only Q PLCs and GX Developer software. |
| GX IEC Developer programming | 2 days | How to use and exploit the features and facilities of the IEC 61131 programming standard. |
| GX Developer to GX Works2 | 1 day | How to change from using GX Developer software to GX Works2 software using the "Simple mode" option. |
| GX IEC Developer to GX Works2 | 1 day | How to change from using GX IEC Developer software to GX Works2 software using the "Structured mode" option. |
| Motion control | 3 days | How to use and exploit the features of the Q Series Motion control CPU system. |
| Q PLC Maintenance | 1 day | A hands-on course focusing on understanding the correct operation of the PLC but also determining the causes of faults with techniques for hardware and software diagnosis. |
| Q series QD75 Positioning | 1 day | This course focuses on configuring the features of a QD75 module and applying them to typical servo systems. |
| FX PLC Maintenance | 1 day | A hands-on course focusing on understanding the correct operation of the PLC but also determining the causes of faults with techniques for hardware and software diagnosis. |

All courses subject to availability.
Check with the team for any curriculum changes.

The right solution for your application



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