

Mitsubishi Electric  
Factory Automation Division

Academy 

ACADEMY PROJECT

**Training Catalogue**

MARCH - MAY 2025



**Automating  
the World**

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## The Project AcadeMy

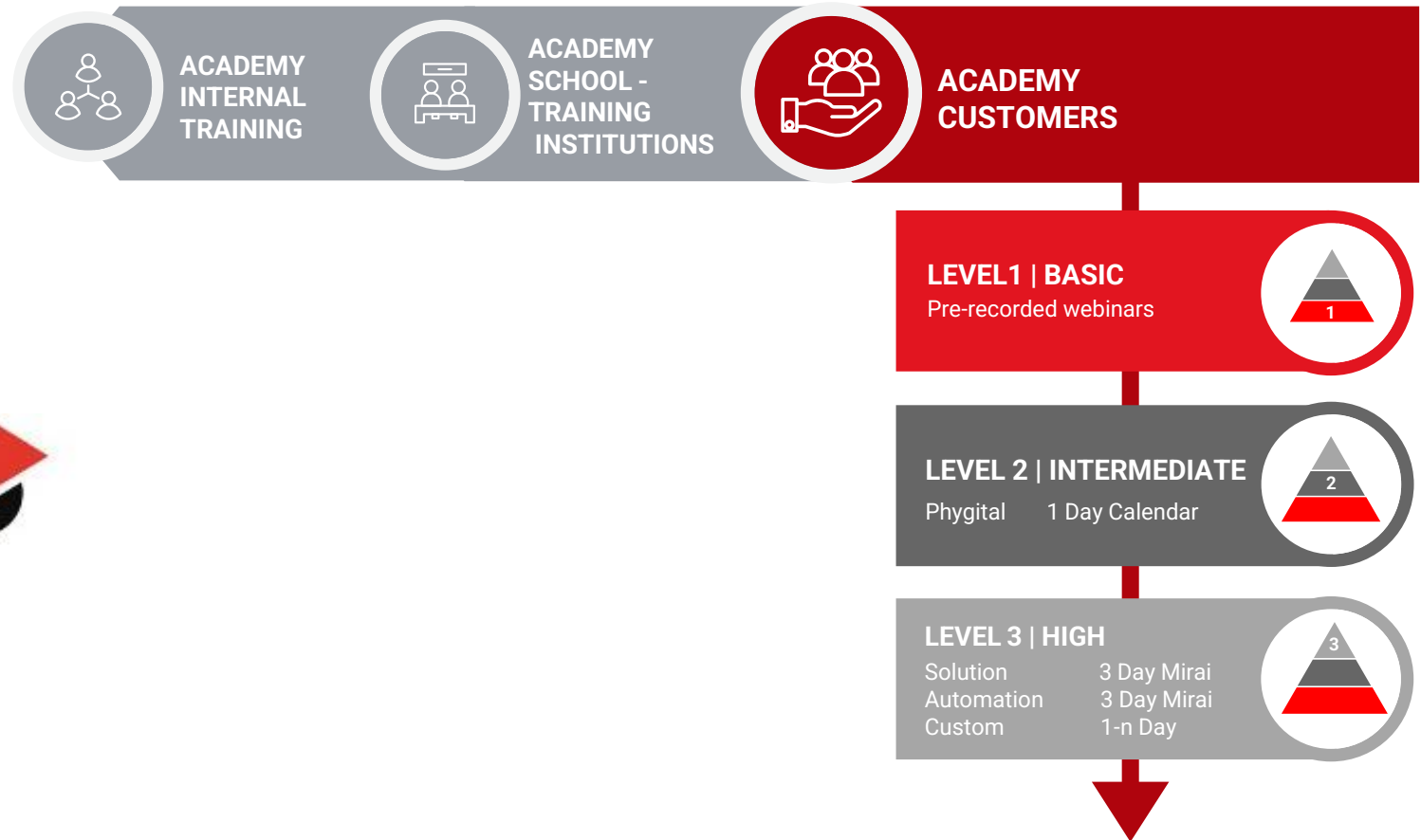
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Mitsubishi Electric strongly believes that training is the best way to spread out automation culture and meet market needs. This is why we created the AcadeMy programme, a system of training courses held both in its offices in Vimercate, Rome, Turin, Padua, and its support offices in Prato and Bologna.

The **AcadeMy** is based on 7 principles such as Trust, Quality, Technology, Training, Ethics, Skills and Growth and provides both standard and customized training courses addressed to a wide audience, ranging from high school or university students, System Integrators, OEMs and End Users.



# Structure



**LEVEL 1**



- Webinar On Demand

## LEVEL 1 | Basic

Trainings on demand **FREE OF CHARGE**



The first of the AcadeMy's three levels provides **FREE OF CHARGE basic product trainings, Q&As, and video tutorials** on specific functions addressed to anyone who wishes to acquire new skills or improve their knowledge.

The trainings consist of free pre-recorded video tutorials ranging from **2 minutes to 3 hours** and can be enjoyed independently via PC or Smartphone.





# List of available trainings

Trainings on demand **FREE OF CHARGE**



Click **HERE** to  
access all  
trainings



PLC	HMI	INVERTER	ROBOT	SCADA
<b>COMPACT PLC iQ-F</b>				
				
<ul style="list-style-type: none"><li>• Basic training   Compact PLC iQ-F</li><li>• Q&amp;A PLC - FX5 - Firmware Update</li><li>• Q&amp;A PLC - Program Download From SD Card</li></ul>				
<b>MODULAR PLC iQ-R</b>				
				
<ul style="list-style-type: none"><li>• Basic training   Modular PLC iQ-R - Part 1</li><li>• Basic training   Modular PLC iQ-R - Part 2</li><li>• Basic training   Modular PLC iQ-R - Part 3</li></ul>				

**LEVEL 2**



- Phygital, 1 Day, Calendar



## Level 2 | Intermediate

Phygital Trainings, 1 Day, Calendar



The second of the AcadeMy's three levels provides **one-day in-person** or web-based training on all Mitsubishi Electric products, solutions and applications. It is addressed to **technicians who wish to acquire skills supported by a trainer** and obtain a final certificate of participation.

Courses last a full day, from 9.30 a.m. to about 5 p.m.

### Training features

- ▶ Final test with **certificate of attendance** useful for training credits or training funding
- ▶ iQWorks licence included on first enrollment
- ▶ Supply of PDF documents and training exercises
- ▶ The teacher will use the DEMO kits for practical testing of various exercises
- ▶ Participants will be invited to use programmes in simulation, also via streaming
- ▶ **Basic product knowledge is recommended by participating to On Demand Webinars (level 1)**



# Inverter Applications

**SAP Code** 272521



## Topics covered:

- ▶ Introduction to Mitsubishi Electric Inverters
- ▶ CC-Link IE Field Basic network configuration:
  - Data exchange between an FX5U PLC and a FR-E800 Inverter
  - Communication Diagnostics
- ▶ CC-Link IE TSN network configuration:
  - Data exchange between a TSN master FX5-CCLGN-MS and an Inverter FR-E800
  - Communication Diagnostics
- ▶ Inverter Management via HMI
  - Communication Configuration
  - Device List
  - GOT Drive: Using the Template



Software installation required:



## Compact PLC iQ-F Applications

**SAP Code 333515**



### Topics covered:

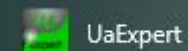
- ▶ Introduction of iQ-F Series Compact PLCs
- ▶ CC-Link IE Field Basic network configuration:
  - Data exchange between an FX5U and an MR-JE-C Servo Drive
  - Communication Diagnostics
- ▶ Simple PLC Communication Configuration
  - Communication Diagnostics
- ▶ Modbus TCP: Configuration of data exchange between two FX5U PLCs
  - Communication Diagnostics
- ▶ Configuration of the FX5-OPC module in communication with a client
  - Testing with OPC UA Client free «UaExpert»



The next level of industry

**MELSEC iQ-F**  
series

Software installation required:

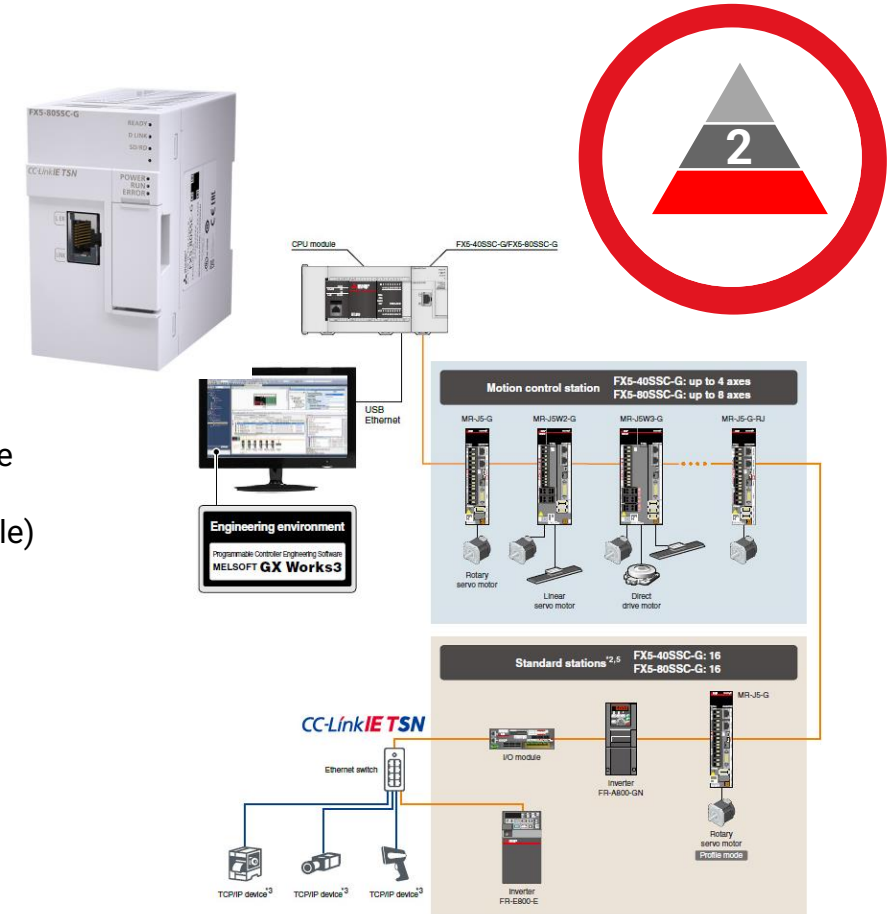


## Simple Motion iQ-F Applications

**Codice SAP 272520**

### Topics covered:

- ▶ Board Presentation of FX5-40SSC-G Motion, CC-Link IE TSN Network and MR-J5-G Servo Drive
- ▶ Settings and Creation of CC-Link IE TSN Network with MR-J5-G Servo Drive
- ▶ Motion functions FX5-40SSC-G (ADVANCED speed operation, Mark detection, Positioning table)
- ▶ FX5-40SSC-G Template usage examples (Jog, Home, Positioning, Interpolation)
- ▶ Virtual axes (Real and CGA) , External encoders
- ▶ Synchronous Control, Clutch, Electronic Cam.
- ▶ Axis timing management (Initial analysis axis phase, Run time control change phase request)
- ▶ Axis tuning with application examples on demo
- ▶ Electronic cam profile design
- ▶ MR-J5-G fully closed loop system: load-side feedback encoder connection




Software installation required:



MR Configurator2



GX Works3



GT Designer3

# HMI - GOT Applications

**SAP Code** 272515



## Topics covered:

- ▶ Real-time simulation of HMI base template with PLC
- ▶ Programming and use of the Data Logging function
- ▶ Design and use of recipes
- ▶ Using MES Interface on GOT panel
  - DB Connection Service Tool installation and configuration guide
  - SQL Server Management Studio installation guide
  - SQL database configuration, creation, management, backup and restore
- ▶ Control via GOT2000 of FR-E800 inverters in Modbus TCP



Software installation required:



GT Designer3



FR Configurator2



GX Works3

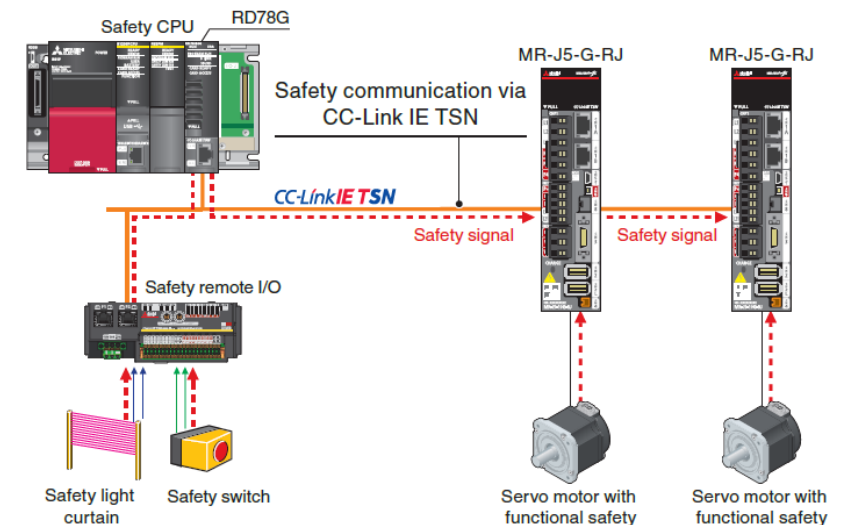


# Simple Motion iQ-R & Safety Applications

SAP Code 333518

## Topics covered:

- ▶ RD78G Motion Module Presentation, CC-Link IE TSN Network and MR-J5-G Servo Drive
- ▶ Settings and Creation of CC-Link IE TSN Network with MR-J5-G Servo Drive
- ▶ RD78G Motion Functions (ADVANCED speed operation, Mark detection, etc.)
- ▶ RD78G Template usage examples (Jog, Home, Positioning, Interpolation)
- ▶ Virtual axes (Real and CGA) , External encoders
- ▶ Synchronous Control, Clutch, Electronic Cam.
- ▶ Axis Tuning
- ▶ Introduction and settings safety PLC and safety remote I/O on CC-Link IE TSN network
- ▶ Integrated MR-J5-G safety functions on CC-Link IE TSN bus (STO, SLS, SS1, SS2, SOS etc.)
- ▶ FB safety use for MR-J5-G management
- ▶ Application example of safety network use on CC-Link IE TSN bus with demo
- ▶ Introduction and use Servo Drive MR-J5-G on CC-Link IE TSN network in I/O mode (Profile Mode)



Software installation required:



GX Works3



GT Designer3



MR Configurator2



# PLC - iQ-R Application

SAP Code 333516



## Topics covered:

- ▶ Presentation of the iQ-R modular platform
- ▶ Simple CPU Communication: data exchange with iQ-F
- ▶ Modbus TCP
  - Simple CPU Communication (master)
  - Slave configuration
  - Function Block Library (master and slave)
- ▶ CC-Link IE TSN
  - Network and architecture description
  - Network configuration and communication tests
- ▶ Safety
  - CPU Configuration
  - I/O Configuration Safety CC-Link IE TSN
  - Configuration Safety CC-Link IE TSN with Inverter



Software installation required:



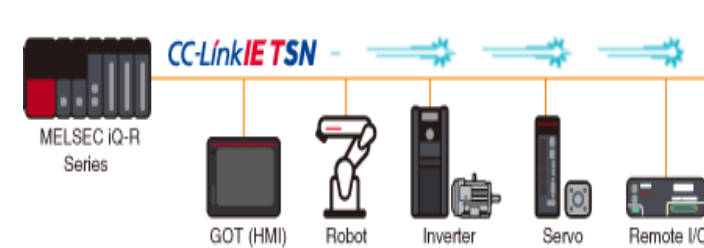
## Robot Applications

SAP Code 272519



### Topics covered:

- ▶ Industrial and Collaborative Robot lineup presentation
- ▶ Parameterization and Networking CC-Link IE Field Basic with IQ-F and HMI
- ▶ Using T/B and JOINT, XYZ, TOOL movements
- ▶ Programming basics
- ▶ Programming software and cables
- ▶ Creating a new project with the RT ToolBox3 programming suite
- ▶ Basic movement instructions
- ▶ Pick & Place program example
- ▶ Use of some advanced instructions (PLT, CNT)
- ▶ Control via template from HMI
- ▶ Using the SPLINE function



Software installation required:





# Training Calendar

Trimester **MARCH - MAY**



Course	March	April	May	SAP Code
<b>INVERTER Applications - ITA</b> iQ-F IEF Basic - iQ-F IEF TSN - Control from HMI	10/03/2025 26/03/2025	04/04/2025	13/5/2025	272521
<b>INVERTER Applications - ENG</b> iQ-F IEF Basic - iQ-F IEF TSN - Control from HMI	On request	On request	On request	272521
<b>Compact PLC - iQ-F Applications - ITA</b> iQ-F IEF Basic with Servo - Simple PLC communication - Modbus TCP between 2 PLCs - OPC UA	11/03/2025 27/03/2025	01/04/2025 16/04/2025	14/05/2025	333515
<b>Compact PLC - iQ-F Applications - ENG</b> iQ-F IEF Basic with Servo - Simple PLC Communication - Modbus TCP between 2 PLCs - OPC UA	On request	On request	On request	333515
<b>Simple Motion iQ-F Applications - ITA</b> Servo & Tuning - iQ-F SSCNET III o TSN	12/03/2025 28/03/2025	02/04/2025 17/04/2025	15/05/2025	272520
<b>Simple Motion iQ-F Applications - ENG</b> Servo & Tuning - iQ-F SSCNET III o TSN	On request	On request	On request	272520

# Training Calendar

Trimester **MARCH - MAY**



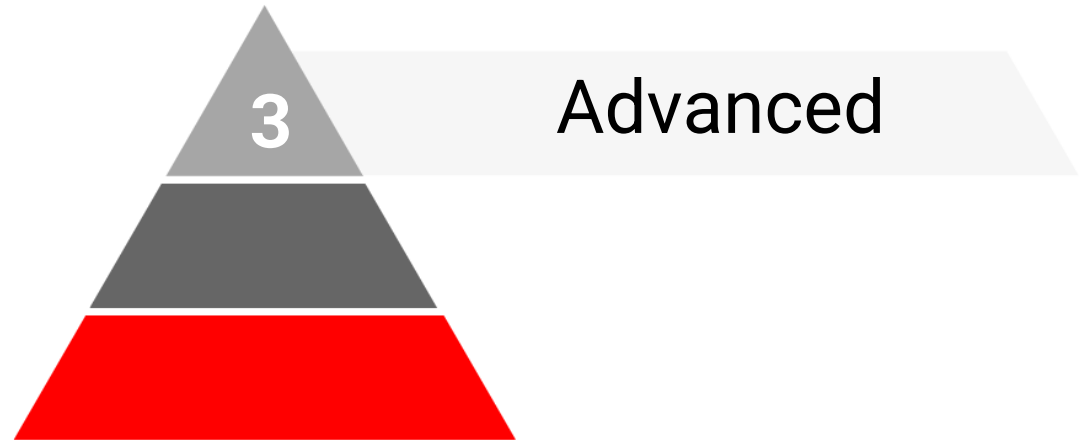
Course	March	April	May	SAP Code
<b>HMI-GOT Applications - ITA</b> Simulation with PLC - Data Logging - Recipes - MES - Modbus TCP with Inverter	14/03/2025	14/04/2025	12/05/2025	272515
<b>HMI-GOT Applications - ENG</b> Simulation with PLC - Data Logging - Recipes - MES - Modbus TCP with Inverter	On request	On request	On request	272515
<b>Simple Motion iQ-R &amp; Safety Applications - ITA</b> Motion J5 -Tuning - Safety Motion - Safety I/O - Safety Inverter	13/03/2025	18/04/2025	16/05/2025	333518
<b>Simple Motion iQ-R &amp; Safety Applications - ENG</b> Motion J5 -Tuning - Safety Motion - Safety I/O - Safety Inverter	On request	On request	On request	333518
<b>PLC - iQ-R Applications - ITA</b> Safety - Simple PLC con iQ-F - Modbus TCP - Data exchange between CPUs	24/03/2025	03/04/2025	27/05/2025	333516
<b>PLC - iQ-R Applications - ENG</b> Safety - Simple PLC con iQ-F - Modbus TCP - Data exchange between CPUs	On request	On request	On request	333516
<b>Robot Applications - ITA</b> IEF Basic con IQF - Control from HMI - Spline	25/03/2025	28/04/2025	26/05/2025	272519
<b>Robot Applications - ENG</b> IEF Basic con IQF - Control from HMI - Spline	On request	On request	On request	272519

# Training Summary



Corso	SAP Code
<b>INVERTER Applications</b> iQ-F IEF Basic - iQ-F IEF TSN - Control from HMI	272251
<b>Compact PLC - iQ-F Applications</b> iQ-F IEF Basic with Servo - Simple PLC communication - Modbus TCP between 2 PLCs - OPC UA	333515
<b>Simple Motion iQ-F Applications</b> Servo & Tuning - iQ-F SSCNET III o TSN	272520
<b>HMI-GOT Applications</b> Simulation with PLC - Data Logging - Recipes - MES - Modbus TCP with Inverter	272515
<b>Simple Motion iQ-R &amp; Safety Applications</b> Motion J5 -Tuning - Safety Motion - Safety I/O - Safety Inverter	333518
<b>PLC - iQ-R Applications</b> Safety - Simple PLC con iQ-F - Modbus TCP - Data exchange between CPUs	333516
<b>Robot Applications</b> IEF Basic con IQF - Control from HMI - Spline	272519

**LEVEL 3**



- Solution - Automation - Custom

# Level 3 | Advanced

## Trainings Solution - Automation - Custom



The last of the three AcadeMy levels provides advanced multi-day in-presence training packages on Mitsubishi Electric solutions or applications and is addressed to technicians and maintenance engineers who wish to acquire multiple skills supported by an in-presence trainer and a final certificate of attendance.

The trainings last for three full days, from 9.30 a.m. to about 5 p.m.

### Training features

- ▶ iQWorks licence included at first registration (excluding package maintenance)
- ▶ Provision of PDF documents and course exercises
- ▶ The lecturer will use the DEMO kits for practical testing of various exercises
- ▶ Participants, also in streaming, will be invited to use programs in simulation
- ▶ **Basic product knowledge is recommended by participating to On Demand Webinars (level 1 Basic)**





## Package SOLUTION - Digital SCADA

SAP Code 694474

### Day 1

- ▶ Introduction to SCADA Genesis64
- ▶ Managing a new project
- ▶ Connection configuration:
  - ▶ Mitsubishi PLC, OPC Classic, OPC UA, MQTT
- ▶ User interface development and runtime configuration
- ▶ GraphWorX64 graphics
- ▶ Visualize and manipulate data
  
- ▶ Practical exercises

### Day 2

- ▶ Alarms Display and acknowledgement
- ▶ Real-time and historical trend visualization
- ▶ Organize your systems, buildings and processes in an asset-based hierarchy
- ▶ Implement Global/Local Aliasing to reduce development time
  
- ▶ Practical exercises

### Day 3

- ▶ Hyper Historian :
  - Logging on files
  - Logging on Microsoft SQL
- ▶ HyperAlarm/AlarmWorX
  - Logging on Microsoft SQL
  - Advanced Features
- ▶ Users and system security
  
- ▶ Practical exercises

Software installation required: **GENESIS64™**





## Package SOLUTION - Robot

**SAP Code 694475**

Day 1	Day 2	Day 3
<ul style="list-style-type: none"> <li>▶ Industrial and Collaborative Robots Lineup</li> <li>▶ Using the «3D Monitor»               <ul style="list-style-type: none"> <li>○ Creating the virtual island</li> <li>○ Importing CAD files: island, tool, workpiece</li> </ul> </li> <li>▶ Choice of robot               <ul style="list-style-type: none"> <li>○ Criteria and methods</li> <li>○ Project development and simulation</li> <li>○ Checking cycle time, axis load, inertia</li> </ul> </li> <li>▶ Operating modes:               <ul style="list-style-type: none"> <li>○ Control from RT ToolBox3, Teaching-Box, digital IO board, fieldbus</li> </ul> </li> <li>▶ Practical exercises</li> </ul>	<ul style="list-style-type: none"> <li>▶ Safety applications: Industrial, Cooperative, Collaborative robots</li> <li>▶ Advanced safety features with MelfaSafePlus</li> <li>▶ Data exchange in CC-LINK IE Field Basic with iQF - iQR</li> <li>▶ Control by GOT2000:               <ul style="list-style-type: none"> <li>○ Template usage and customisation</li> </ul> </li> <li>▶ Advanced Features:               <ul style="list-style-type: none"> <li>○ Compliance control and torque limitation</li> <li>○ Methods of anti-collision</li> <li>○ SPLINE with fixed and dynamic points</li> </ul> </li> <li>▶ Practical exercises</li> </ul>	<ul style="list-style-type: none"> <li>▶ Use of FB from Mitsubishi PLC for robot control</li> <li>▶ Additional axes management</li> <li>▶ Communication socket (ASCII Data Link) for data exchange with vision systems and PCs</li> <li>▶ Conveyor Tracking: configuration and application examples</li> <li>▶ MELFA Smart Plus introduction: predictive maintenance, tracking with additional axes, 2D calibration</li> <li>▶ Practical exercises</li> </ul>

Software installation required:





## Package SOLUTION - CPU Motion

**SAP Code 694476**

### Day 1

- ▶ Presentation Motion CPU iQ-R SSC-Net in Fiber Optic and Servo Drive MR-J4-B
- ▶ Multi CPU system (HS communication)
- ▶ Motion CPU (Servo Program , Mark detection, Limit Output data, SFC program, etc.) functions
- ▶ Examples of use Motion Template (Jog, Home, Positioning, Interpolation, CP Start operation, etc)
- ▶ MR-J4 fully closed loop system: connection second load side feedback encoder
  
- ▶ Practical exercises

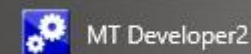
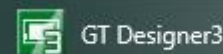
### Day 2

- ▶ Synchronous Control, Clutch, Electronic Cam
- ▶ Virtual axis management (Real and CGA), external encoders
- ▶ Initial analysis axis phase (Run time control change phase request)
- ▶ Application example synchronous control with 3-axis demo
- ▶ Design of electronic cam profiles in «Coordinate Mode»
  
- ▶ Practical exercises

### Day 3

- ▶ Sizing and Tuning of axes
- ▶ Practical examples of sizing
- ▶ Examples of tuning with demo
  
- ▶ Practical exercises

Software installation required:







## Package SOLUTION - Packaging

SAP Code 694477

Day 1	Day 2	Day 3
<p><b>Introduction to the process of a «flowpack» horizontal packaging machine</b></p> <ul style="list-style-type: none"> <li>▶ Product phase, brand detection, cam crimping machine (rotary / linear / long D welding profile)</li> <li>▶ No products No Bag, No Gap No Seal</li> <li>▶ Thermoregulation</li> <li>▶ Motorizer: Sizing Rotary crimper motor (example Mechanics our demo)</li> </ul> <p>▶ Practical exercises</p>	<p><b>Mitsubishi Electric proposal</b></p> <ul style="list-style-type: none"> <li>▶ Cam profile of a rotating crimper</li> <li>▶ Return to axis phase after opening of the protections (Initial analysis axis phase)</li> <li>▶ Mark detection and phase change management (Run time control change phase request)</li> <li>▶ Verification of operation in simulation</li> <li>▶ Change cam profile on the fly (Run time control change phase request)</li> <li>▶ Flight release and docking for NPNB and NGNS functions</li> </ul> <p>▶ Practical exercises</p>	<ul style="list-style-type: none"> <li>▶ Use of Robots for packaging applications</li> <li>▶ Communication socket (ASCII Data Link) for data exchange with vision systems</li> <li>▶ Conveyor Tracking: configuration and application examples of a Scara Robot on a horizontal packaging machine</li> </ul> <p>▶ Practical exercises</p>

Software installation required:





## Package SOLUTION - Life Science

SAP Code 694478

### Day 1

- ▶ Introduction to Scara and Anthropomorphic Robots in the «Life Science» market
- ▶ Use of the "3D Monitor"
- ▶ Virtual island Creation
- ▶ CAD file import: island, tool, workpiece
- ▶ Choice of robot
- ▶ Criteria and modalities
- ▶ Project development and simulation
- ▶ Check cycle time, axle load, inertia
  
- ▶ Practical exercises

### Day 2

- ▶ Communication socket (ASCII Data Link) for data exchange with vision systems
- ▶ Conveyor Tracking: configuration and application examples of a Scara or Anthropomorphic Robot
- ▶ CC-LINK IE TSN network management
- ▶ Management of Profinet networks
- ▶ Modbus TCP network management
  
- ▶ Practical exercises

### Day 3

- ▶ Interface with the database:
  - Using MES modules on iQR
  - Using MES modules on GOT2000
  - OPC UA iQF module configuration
  - OPC UA iQR module configuration
  - The MX-OPC UA Client software
  
- ▶ Practical exercises

Software installation required:





## Package SOLUTION - Process

**SAP Code** 694479

### Day 1

- ▶ iQ-R modular PLC introduction
- ▶ Process CPUs
- ▶ CPU and network device redundancy (CC-Link IE Field): configuration
- ▶ PID functions integrated in the process CPU, process FB
- ▶ Practical exercises

### Day 2

- ▶ Introduction to the GENESIS64 Scada for process applications
- ▶ Redundancy configuration in SCADA (server/client)
- ▶ Practical exercises

### Day 3

- ▶ Complete PLC-SCADA configuration and testing of a redundant system
- ▶ Practical exercises

Software installation required:



MR Configurator2



GT Designer3



GX Works3



RT ToolBox3

## Package AUTOMATION - Beginner

SAP Code 690002



The course is designed for newly hired technicians who have minimal skills in industrial automation

Day 1	Day 2	Day 3
<ul style="list-style-type: none"><li>▶ Compact PLC basic course</li><li>▶ GOT2000 series HMI introduction</li><li>▶ PLC simulator / HMI introduction</li></ul>	<ul style="list-style-type: none"><li>▶ See course «Simple Motion iQ-F Applications» cod. 272520</li></ul> <p style="text-align: center;"><b>Click HERE to view the dedicated slide</b></p>	<ul style="list-style-type: none"><li>▶ Inverter applications introduction</li><li>▶ Robot Applications introduction</li></ul>
<ul style="list-style-type: none"><li>▶ Practical exercises</li></ul>	<ul style="list-style-type: none"><li>▶ Practical exercises</li></ul>	<ul style="list-style-type: none"><li>▶ Practical exercises</li></ul>

Software installation required:



## Package AUTOMATION - Expert

SAP Code 690003



The course is designed for technicians who have industrial automation skills but do not know Mitsubishi Electric products

Day 1	Day 2	Day 3
<ul style="list-style-type: none"><li>▶ See course «Compact PLC iQF Applications» cod. 333515</li></ul> <p><a href="#">Click HERE to view the dedicated slide</a></p> <ul style="list-style-type: none"><li>▶ Practical exercises</li></ul>	<ul style="list-style-type: none"><li>▶ See course «Simple Motion iQ-F Applications» cod. 272520</li></ul> <p><a href="#">Click HERE to view the dedicated slide</a></p> <ul style="list-style-type: none"><li>▶ Practical exercises</li></ul>	<ul style="list-style-type: none"><li>▶ See course «Robot Applications» cod. 272519</li></ul> <p><a href="#">Click HERE to view the dedicated slide</a></p> <ul style="list-style-type: none"><li>▶ Practical exercises</li></ul>

Software installation required:



## Package CUSTOM

SAP Code 690004



Course	Durations	Conditions	Date
Package CUSTOM	>=3 day	Phygital	On request

### Note Package Custom:

- ▶ It is possible to compose the days on topics defined in level 2 or 3 courses (Solution or Automation).
- ▶ Any requests on customer specific arguments (e.g. specifications) will be considered with dedicated configurations and offers for a minimum package of 3 days.

# Training Summary



Corso	SAP Code
Package SOLUTION - Digital SCADA	694474
Package SOLUTION - Robot	694475
Package SOLUTION - CPU Motion	694476
Package SOLUTION - Packaging	694477
Package SOLUTION - Life Science	694478
Package SOLUTION - Process	694479
Package AUTOMATION - Beginner	690002
Package AUTOMATION - Expert	690003
Package CUSTOM	690004

# Contacts

Need more details about our training?  
Contact us:

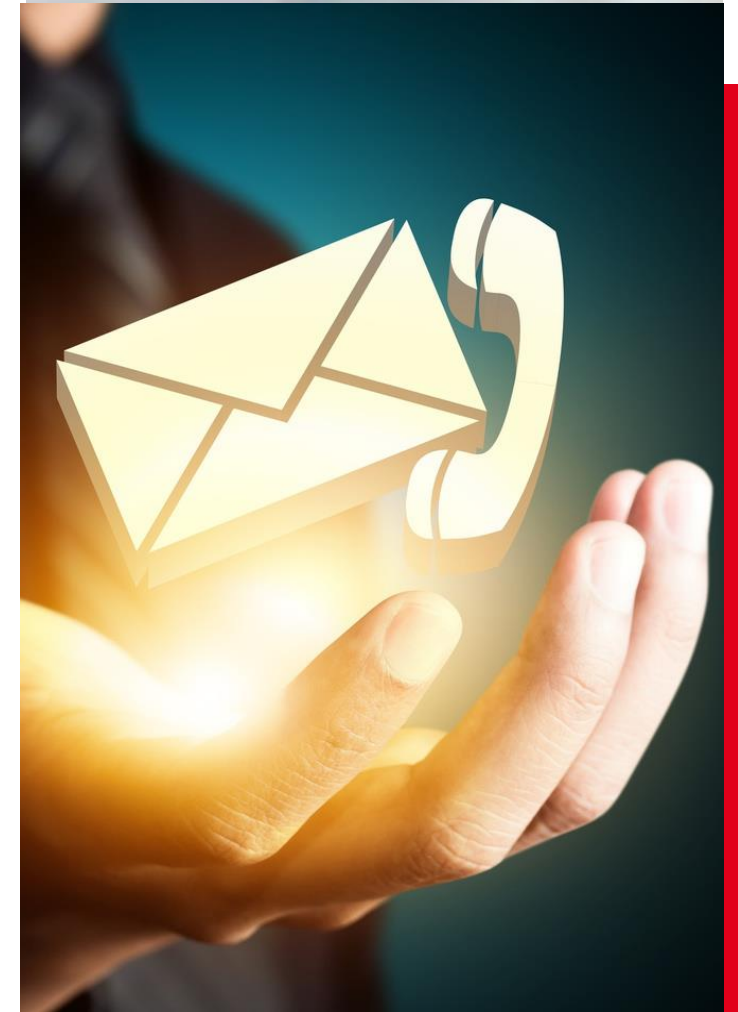


[training.ida@it.mee.com](mailto:training.ida@it.mee.com)

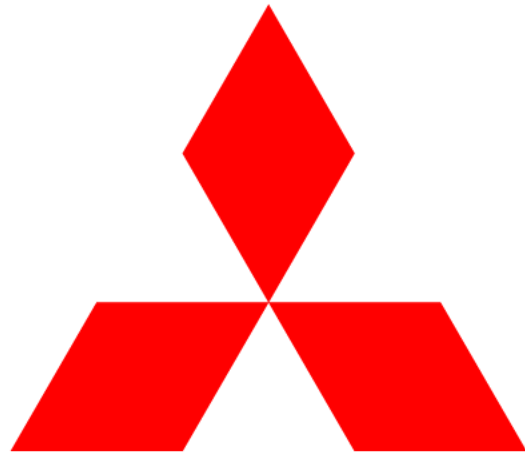


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