

Malaysian Smart Factory 4.0

Operational Technologies Fundamental

Hands On
Industry
4.0

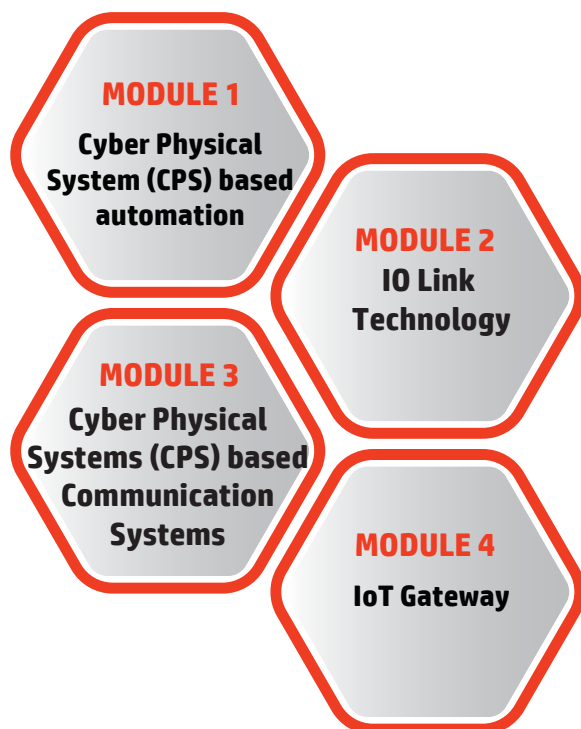
Overview

Smart Factory takes current manufacturing processes to Industry 4.0 standards; highly agile, efficient and automated production lines capable of data generation and collation. Combined with analytics and machine learning, the factory of the future will have predictive and prescriptive capabilities, contributing to higher productivity & boundless innovation.

The Malaysian Smart Factory (MSF) 4.0 program @ SHRDC offers smart factory competency training through hands-on and online/remote learning approaches, ideal for relevant skillset and talent development towards an Industry 4.0 ready workforce in Malaysia.

Target audience: Engineers, Technicians, Academia with relevant background

Training Modules:



Total Duration:

26 Days

Venue:

SHRDC Training Centre Shah Alam

Cost per program:

RM18,020 (HRDF SBL Claimable)

Cost per module:

RM4,505 (HRDF SBL Claimable)

Cost fee is inclusive 6% SST

MSF 4.0 is a SHRDC partnership with the Swiss Smart Factory delivering hands-on experience and talents for the future of manufacturing



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Module 1 Cyber Physical System (CPS) based Automation

- ▶ Introduction to Reference Architecture Model Industrie (RAMI) 4.0
- ▶ Introduction to Cyber Physical Systems (CPS) based Automation
- ▶ CPS based automation; programming – state chart, UML & function blocks & exercises
- ▶ CPS based automation; introduction to CEyeClon conveyor work station & exercises

Upon completing this module, participants will be able to:

- ✔ Understand the fundamentals of RAMI 4.0
- ✔ Understand the fundamentals of CPS based automation
- ✔ Apply PLC programming to reflect CPS based automation through state chart, UML & function blocks
- ✔ Apply PLC programming to test and commission CPS based function blocks
- ✔ Utilize remote learning platform to test the idea of CPS based automation

5 Days
9 am – 5 pm

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Module 2 IO Link Technology

- ▶ Introduction to IO-LINK Technology
- ▶ Working with IO-LINK - IO-LINK Master
- ▶ Working with IO-LINK - Legacy Devices (Sensors)
- ▶ Working with IO-LINK - Legacy Devices (Actuators)
- ▶ Working with IO-LINK - Smart Devices (Smart Sensor)
- ▶ Working with IO-LINK - Smart Devices (Smart Actuators/Light)
- ▶ Working with IO-LINK - Smart Devices (Smart Power Supply Units)
- ▶ Working with IO-LINK - Smart Devices (RFID)

Upon completing this module, participants will be able to:

- ✔ Understand the fundamentals of IO-LINK technology and its uses in automation
- ✔ Utilize IO-LINK technology by parameterizing the IO-LINK Master Hub
- ✔ Utilize IO-LINK to work with Legacy Devices
- ✔ Utilize IO-LINK to work with IO-LINK Smart Devices

Project and Assessment

4 Days
9 am – 5 pm

4 Days
9 am – 5 pm

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Module 3 Cyber Physical Systems (CPS) based Communication Systems

4 Days
9 am – 5 pm

- ▶ Industrial field buses Ethernet IP
- ▶ Industrial field buses Profinet
- ▶ Configuring hardware & network (theory)
- ▶ Configuring hardware & network (practical)
- ▶ Operating system with program block, function block, data block etc (theory)
- ▶ Operating system with program block, function block, data block etc (practical)
- ▶ Operating System with program block, function block, data block, etc. Additional function of counter and timer/ single and multi-instance (Practical)
- ▶ Open User Communication (OUC) (theory)
- ▶ Setting up the Open User Communication (UOC) (practical)

Upon completing this module, participants will be able to:

- ✓ Understand the fundamentals of Industrial Ethernet and how it is utilized as industrial fieldbus
- ✓ Utilize ProFINET as an industrial fieldbus to enable device to device communication
- ✓ Utilize OUC function block to enable TCP device to device communication

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Module 4 IoT-Gateway

4 Days
9 am – 5 pm

- ▶ Installing Node-RED
- ▶ Connecting & setting up IoT Gateway network
- ▶ Familiarising with Node-RED
- ▶ MyLiveZone activity with Node-RED
- ▶ Using Node-RED to read variable data from PLC
- ▶ Display PLC data using Node-RED dashboard and Watson IoT
- ▶ Using Node-RED to write data into PLC or control PLC
- ▶ Using MQTT with Node-RED to read and write data

Upon completing this module, participants will be able to:

- ✓ Understand the fundamentals of IoT Gateways and their uses in automation.
- ✓ Utilize Node-RED, IBM Watson and MQTT to bridge multiple devices and create a smart system.

Project and Assessment

4 Days
9 am – 5 pm



SHRDC

For more information please contact: +603 5513 3560 info@shrdc.org.my

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