Malaysian Smart Factory 4.0
Operational Technologies Fundamental

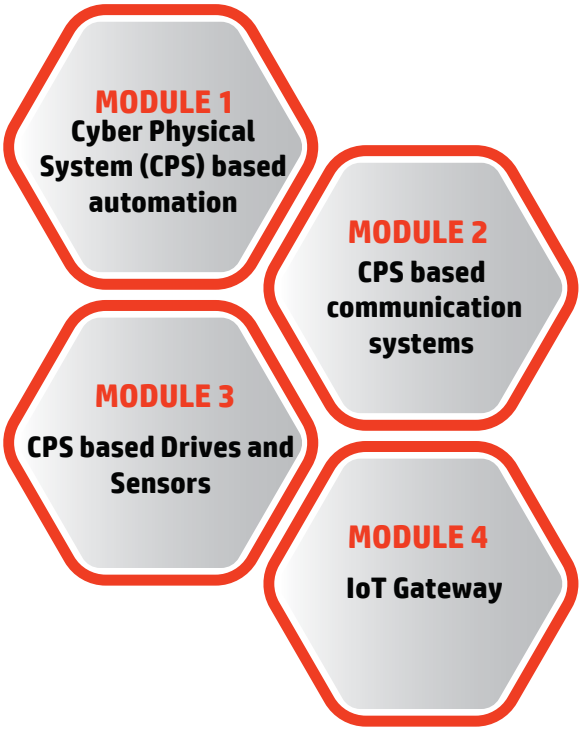
Hands On Industry 4.0

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 (2 days/13 weeks)
Venue:
SHRDC Training Centre Shah Alam
Cost per program:
RM18,020 (HRDF SBL / SBL KHAS Claimable)
Cost per module:
RM4,505 (HRDF SBL / SBL KHAS Claimable)

Cost fee is inclusive 6% SST

1

Module 1
Cyber Physical System (CPS) based Automation

5 Days
9 am – 5 pm

- Introduction to the topic CPS and distributed automation (including RAMI 4.0)
- Work with local variables, definition of interfaces, assignment of interfaces, IEC functional components as local variables, multi-instances
- Analysis of the overall function and structure of CPS-based automation systems
- Modularization of an overall function and description of sub-functions of CPS-based automation systems
- Description of interfaces of CPS-based automation systems
- Programming and interconnecting sub-functions in conventional programming language
- Testing sub-functions with conventional programming languages
- Programming and interconnecting sub-functions with object-based programming languages
- Testing sub-functions with object-based programming languages

Upon completing this module, participants will be able to:

- Use latest programming standards with distributed automation applications following the CPS paradigm. Both with local as well as distributed intelligence
- Analyze an overall function dividing it into encapsulated - modularized- sub-functions of CPS
- Identify the importance on a logical interface concept.
- Implement the subtasks (sub-functions) using appropriate means, including both hardware and software. He/she uses the right software tools and programming language.A test concept provides support for checking the functionality of the sub-functions

2

Module 2
CPS-based Communication Systems

5 Days
9 am – 5 pm

- Industrial field buses Ethernet IP
- Industrial field buses PROFINET
- Industrial Ethernet and PROFINET: Technical data, PROFINET I/O, the PROFINET - data communication between two controls systems data communication in major networks

Upon completing this module, participants will be able to:

- Understand of the risks that could result due to the integration of modern control and communication technologies
- Understand the integration of new, distributed and networked control and communication systems according to economic and ecological aspects in new plants

Project and Assessment for module 1 & 2

3 Days
9 am – 5 pm

3

Module 3
CPS-based Drives and Sensors

6 Days
9 am – 5 pm

- Irregular drive
- Regulated drive (servo axis)
- Drive monitoring
- IO-Link Technology
- IO-Link Technology with legacy sensors
- Measurement systems

Upon completing this module, participants will be able to:

- Identify the use of various drive types according to technical requirements. He/she selects the adapted drive and integrates it into the plant

4

Module 4
IoT-Gateway

4 Days
9 am – 5 pm

- Node-RED editor
- Java Script
- MQTT

Upon completing this module, participants will be able to:

- Implement suitable IoT gateway for bridging between the OT and IT systems

Project and Assessment for module 3 & 4

3 Days
9 am – 5 pm

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

SWISS SMART FACTORY

MALAYSIAN SMART FACTORY 4.0

SHRDC

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

Selangor Human Resource Development Centre
No 1, Ground Floor, Block 2, Pusat Perniagaan Worldwide (Worldwide Business Park),
Jalan Tinju 13/50, Section 13, 40100 Shah Alam, Selangor Darul Ehsan, Malaysia.
tel. +603 5513 3560 **fax.** +603 5513 3490 **email.** info@shrdc.org.my www.shrdc.org.my