PLC Essentials for Smart Factory



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, Technical Managers, Production Managers, Academia with relevant background.

Modular Options & Duration:

- Fundamental: 4 Days
- Intermediate: 2 Days
- Advanced: 3 Days

Upon successful completion of training, participants will be able to:

Fundamental:

- > Determine the software and hardware requirements for PLC
- > Draw PLC input and output wiring diagram
- Connect sensors and actuators to PLC
- Construct basic PLC program
- Run test to the constructed program to check compliance with the required operation

Intermediate:

- Define FB, FC and DB
- Solve mathematical operation using PLC program
- Connect analog input to PLC
- Construct PLC program for analog signals
- Run test to the constructed program to check compliance with the required operation

Advanced:

- Create a sequence flowchart using a Grafcet software
- Sonstruct sequential control operation using PLC
- Create scenario using Factory IO software
- ▶ Integrate Factory IO scenario with PLC program
- Run test to the constructed program to check compliance with the required operation

Cost per program:

RM8,480(HRDF SBL Claimable)

Cost per module:

- Fundamental:RM3,180 (HRDF SBL Claimable)
- Intermediate: RM2,120 (HRDF SBL Claimable)
- Advanced: RM3,180 (HRDF SBL Claimable)

Cost fee is inclusive 6% SST

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FUNDAMENTAL:

Revision on Numbering Systems and Logic Operations

Programmable Logic Controllers (PLCs) Overview

- What is PLC?
- Why do use PLC?
- PLC Structure
- Automated System Example
- How does a PLC work?
- PLC hardware example
- PLC wiring diagram

Programmable Logic Controllers (PLCs) PLC Programming using Ladder Diagram

- Programming Structure
- Ladder Diagram
- Contacts
- Addressing Statement
- Assignment Table
- Program Testing and Commissioning

Programming with Logic Operations

- Logic Operation
- Interlocking
- Self-Maintaining with Dominant Reset
- Self-Maintaining with Dominant Set

Programming with Timers

- On Timer (TON)
- Off Timer (TOF)
- Retentive-On Timer (TONR)

Programming with Counters

- Count-Up (CTU)
- Count-Down (CTD)
- Count-Up-Down (CTUD)

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INTERMEDIATE:

Programming with Function Blocks

- Function block (FB)
- Function (FC)
- Data block (DB)
- Local variable
- Global variable

Programming with Data

- Data Types
- Math Function
- Move Operation

Programming with Analog Signals

- Working with Analog Signals
- Range of Analog Signal
- Comparator Operation
- Conversion Operation

ADVANCED:

Programming with Sequential Control

- GRAFCET
- Sequential Control Operation
- Simulate control operation
- Troubleshoot PLC

Factory IO

- Introduction to Factory IO
- Scenario in Factory IO
- Integration of Factory IO with PLC

Hands On

Industry



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