Module Synopses

PDC 1 Certificate in Automation

1. Industrial Automation System

The module aims to equip learners with knowledge and application skills to integrate industrial communication standards into an automated control system; assembled withProgrammable Logic Controller (PLC), and electro-pneumatic field devices. At the endof the module, learners will be able to recall and apply basic PLC programming to control an automated system, and configure a Human-Machine Interface (HMI). In addition, learners will integrate various field devices using IO-Link sensors for data collection, EtherCAT for motion control, and Open Platform Communications Unified Architecture (OPC-UA) for Machine-to-Machine (M2M) communication.

2. PLC with Cloud Analytics

Industrial controllers (PLCs) are generally used to control industrial and process automation and they are typically networked within the local premises. With the Cloud computing technology, PLCs today will be able to send their data to the remote servers for monitoring and data analytics. The module will provide the students with the most up-to-date skills in developing PLC based automation processes and projects which could send data to the cloud for monitoring, visualization, and analytics. In addition, students will learn how to integrate control devices on a industrial network to extend controllability and accessibility over LAN and WAN. At the end of the module, students would be able to apply what they have learnt from the module and develop aPLC application that sends data to the cloud for analytics and visualization.

PDC 2 Certificate in Advanced Robotics Application

3. Collaborative Robots

The module aims to equip participants with the knowledge and skills of using a collaborative robot, with the appropriate collaborative functions, to complete simple tasks.

By the end of the module, participants will be able to:
Recall collaborative robot applications and system.
Set up robot system and troubleshoot common errors.
Design and create basic robot operation and programming to do simplemovements and tasks.
Implement collaborative functions to detect collisions during robot operation.

4. Industrial Robots

The module equips the learner the fundamental knowledge and application skills to program and operate the robot in the automation, manufacturing and robotics industry.At the end of the module, learners will learn and apply the robot safety, robot terminology, basic robot operations, robot pendant operations, controller error handling and robot programming. They will also program and operate a robot for a pick and place application. The course also covers the robot maintenance, controller recovery system, robot brake release and robot calibration.