Module Synopsis
Specialist Diploma in Robotics & Automation (Smart Intelligence)

PDC 1: Post-Diploma Certificate in Automation	(120 hours)

1. MM9221: Industrial Automation System	(60 hours)

The module aims to equip learners with knowledge and application skills to integrate industrial communication standards into an automated control system; assembled with Programmable Logic Controller (PLC), and electro-pneumatic field devices. At the end of 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. ET1561: PLC with Cloud Analytics	(60 hours)

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 a PLC application that sends data to the cloud for analytics and visualization.

PDC 2: Post-Diploma Certificate in Intelligent Robotics	(120 hours)

1. ET1562: Robotics & Smart Sensing	(60 hours)

This module aims to provide students with a broad knowledge of various types of sensors with an in-depth understanding on their principles and applications in robotics. Data sensing and analysis, signal conditioning techniques and smart sensor such as Lidar & position sensors are also covered. Students are introduced to different methods and technologies to program and control robotic systems. Students learn to be effective in the design of controllers for robotic system. The module offers a practical point of view into how to design systems that close the perception-process-action loop in both simulation and real robots applied to industry and service domains.

2. ET1563: Machine Learning & Artificial Intelligence for Automation	(60 hours)

This module covers the basics of artificial intelligence (AI) and machine learning (ML). It deals with different types of machine learning techniques like supervised, unsupervised and reinforcement learning. It aims to equip students with knowledge to implement AI and ML

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