



ADVANCED DIPLOMA OF MECHANICAL ENGINEERING TECHNOLOGY

MODULE DETAILS

Module 19: Industrial Automation

Nominal duration: 3 weeks (24 hours total time commitment)

This time commitment includes the preparation reading, attendance at each webinar (1 hour plus 15-30 minutes for discussion), and the time necessary to complete the assignments and further study.

MODULE PURPOSE

The elements of industrial control systems form part of an interconnected web using Ethernet, TCP/IP and other data communications technologies. Information is effortlessly transferred from an instrument, to the SCADA system, and from there to a laptop on a boardroom table if required. In this module real-life examples from current technologies are used to give you the latest background in current vendor solutions. The material is presented in an easy-to-understand practical way, enabling you to apply the concepts quickly and effectively to your next automation project.

Once you have completed the module you should have a good overall understanding of how to harness the power of industrial automation technologies and to deal with contractors and experts working in the area. This will result in the ability to make quicker decisions on the best way forward, resulting in a reduction in the time to design, install and commission industrial automation equipment and, naturally, in reduced costs.

PRE-REQUISITE MODULES/UNIT(S)

NONE

ASSESSMENT STRATEGY

To evaluate the achievement of the learning outcomes; written assignments, group projects and practical exercises are set.

SUMMARY OF LEARNING OUTCOMES

1. Examine and discuss the fundamentals of Industrial Data Communications
2. Examine and discuss the fundamentals of SCADA systems
3. Examine and discuss the fundamentals of PLCs and PLC programming



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Learning Outcome 1	Examine and discuss the fundamentals of Industrial data communications
Assessment criteria	<ul style="list-style-type: none">1.1 Examine and discuss the basics of RS-232 and RS-485 communications1.2 Examine and discuss the basics of Ethernet1.3 Capture Ethernet traffic with a protocol analyser1.4 Interpret IPv4 addresses
Learning Outcome 2	Examine and discuss the fundamentals of SCADA systems
Assessment criteria	<ul style="list-style-type: none">2.1 Configure a simple SCADA system2.2 Use OPC to access SCADA system process variables
Learning Outcome 3	Examine and discuss the fundamentals of PLCs and PLC programming
Assessment criteria	<ul style="list-style-type: none">3.1 Compare IEC61131-3 programming methods3.2 Develop simple ladder logic with the aid of a simulator

Delivery Mode

A combination of asynchronous and synchronous e-learning delivery comprising a judicious mix of interactive online web conferencing, simulation (virtual labs) software, remote online labs, online videos, PowerPoint slides, notes, reading and study materials (in PDF, HTML and Word format) accessed through the Moodle Learning Management System (LMS).