M4CPD

THE FUTURE OF WORK IS PEOPLE

M4CPD

Advanced Manufacturing PLC systems

Contents

Programme Award

Award Title	Programmable Logic Controllers
Award Code	6N5370
Award Body	QQI
Award Level	Level 6

Programme Aim

The purpose of this award is to equip the learner with the knowledge, skill and competence to program and locate faults in a programmable logic controller (PLC) working independently or in a supervisory capacity.

Programme Delivery Mode

The delivery mode of the programme as laid out in this document is 5 x 8-hour days. It is recommended for this course that the delivery be 1 day a week over 5 weeks, this will allow the students time to complete the project work.

Learner effort hours breakdown

Instructor lead learning hours	40
Self-Directed learning hours	110

Target Learner Profile

M4CPD Advanced Manufacturing PLC systems is targeted at employees that are working in industry and are seeking to build their knowledge and skills in relation to programmable logic controllers as used in the advanced manufacturing environment.

Learners wishing to participate in this programme should have some knowledge of electrical systems.

Pre-requisites

Learners should complete the following programmes before enrolling in this programme:

- Electrical Systems Introduction for Advanced Manufacturing

Alternatively, learners should have Basic Electrical Training/Experience

Programme Learning Objectives

Programme Learning Outcomes	LO 1. Identify the standard components used with PLC's and describe their function to include input board, output board, central processing unit (CPU), power pack and program input system. LO 2. List the major types of PLC fault. LO 3. Explain the common logic and switching functions of a PLC to include AND, OR, NOT, TIMER, COUNTER and INTERNAL RELAY (FLAG) LO 4. Identify the standard circuit symbols for field input devices to include push buttons, levers, trip rollers, reed switches, inductive sensors, capacitive sensors, photocells, relays and contactors. LO 5. Use an allocation list to determine the condition of the inputs and outputs of the PLC. LO 6. Test the operation of input devices to include push buttons, levers, trip rollers, reed switches, inductive sensors, capacitive sensors, photocells, relays and contactors. LO 7. Use editing functions to locate, monitor and alter elements of programs by means of a programming panel. LO 8. Locate faults using PLC programmes and documentation. LO 9. Rectify a fault in a PLC system. LO 10. Interpret the standard allocation (assignment) lists and input/output circuits associated with PLC systems. LO 11. Formulate short PLC programs in the form of ladder logic diagrams and statement list. LO 12. Construct a range of programs as specified in a (supplied) hardwired circuit diagram.

Certification Details

Certification:	**QQI Level 6**	
Assessment	**Percentage**	**Assessment Description**
Practical Exam	40%	The practical exam will assess the learner's capability in relation to wiring and programming PLC systems
Project	20%	The project will focus on learners compiling all the documentation required in the design of a PLC system
Theory Exam	40%	The Theory exam is a written exam where learners will be examined on a broad spectrum of the course objectives

Assessment Map

Learning objective	Theory Exam	Practical Exam	Project
LO 1	X		
LO 2		X	X
LO 3	X		X
LO 4	X	X	X
LO 5	X		X
LO 6			X
LO 7		X	X
LO 8		X	X
LO 9		X	X
LO 10	X		X
LO 11	X		X
LO 12		X	X