



Australian Government

UEEIC0013 Develop, enter and verify discrete control programs for programmable controllers

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to develop, enter and verify programs for programmable logic controller (PLC) (also known as programmable controller) for a system requiring discrete control functions.

It includes working safely, using control systems and control system development methods, using ladder diagrams/statement list/function block diagram instruction sets, following written instructions, and documenting program development and testing activities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Identify control system requirements

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** PLC operating functions, parameters and specifications are determined from relevant documentation, electrical drawings or persons to determine the control system scope of work

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| | 1.2 | Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified and applied |
| | 1.3 | Control system scenario is developed from job specifications of process/plant/machine controlled through consultation with relevant person/s |
| | 1.4 | PLC block diagram is developed using industry standard symbols |
| | 1.5 | Infotechnology equipment, software and measuring devices needed to carry out the PLC work are obtained and checked for correct operation and safety |
| | 1.6 | Installation of PLC is checked for compliance with relevant industry standards, regulations and job specifications |
| 2 | Develop control system, enter and test program | |
| | 2.1 | Established WHS/OHS risk control measures and procedures for carrying out the work are followed. |
| | 2.2 | Circuits/machines/plant are checked and isolated in accordance with workplace procedures |
| | 2.3 | Control system solutions are developed and documented based on specified control mode and using acceptable methods for designing control systems |
| | 2.4 | Developed control system is converted to an appropriate form |
| | 2.5 | Program is entered into the PLC using appropriate infotechnology and software |
| | 2.6 | Entered instructions and settings are tested in accordance with job specifications by control system scenario |
| | 2.7 | Appropriate methods and tools are used to test control system and operating faults and anomalies are identified and rectified |
| | 2.8 | Unplanned situations are responded to in accordance with workplace procedures, in a manner that minimises risk to persons and equipment |
| 3 | Verify document and report programming | |
| | 3.1 | WHS/OHS work completion risk control measures and procedures are followed |

activities

- 3.2 Program is transferred from PLC to external medium for storage
- 3.3 Control system specification and program are documented in accordance with workplace procedures
- 3.4 Work completion is documented and relevant persons notified in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Developing, entering and verifying programs for PLCs must include at least five (5) of the following functions/controls:

- bit shift registers
- cascading counters
- cascading timers
- combining timers and counters
- constant duty cycle
- derived timers (off delay)
- internal relays/flags/markers
- jump instructions
- latching relays (set/reset)
- master control instructions
- one shot
- retentive (power fail) functions
- reversible counters
- scan time considerations
- self-resetting
- simple step sequence instructions

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI150A Develop, enter and verify discrete control programs for programmable controllers.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>