Australian Government

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

Release: 1

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

Modification History

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

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including identifying programmable logic controller (PLC) risk control measures
- connecting the PLC
- correcting programming anomalies
- dealing with unplanned situations in accordance with workplace procedures in a manner that minimises risk to persons and control equipment
- developing applications for PLC functions including operation and programming of inputs and outputs
- developing a control system solution to specified operating functions and parameters
- developing a PLC block diagram, including identifying industry standard PLC symbols
- documenting control system and programming
- identifying PLC modules and applications
- programming a PLC using industry standard methods such as master control, jump, shift register, step sequencing, timers and counters
- testing and verify control system inputs and outputs operation
- transferring programs to PLC
- documenting control system and programming clearly
- identifying non-compliance conditions of device installation
- converting control system to a PLC program
- entering programming functions and parameters correctly
- transferring program to external storage.

Knowledge Evidence

- Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:
- PLC introduction including:

- evolution of the programmable controller and applications
- relay control, static logic control and programmable control
- programmable controller block diagram (inputs and outputs)
- programmable controller advantages, symbols and functions
- numbering systems start-up procedures
- programming inputs and outputs
- operation of programmable controller inputs
- PLC operation: scan cycle
- basic programming
- types of PLC programs, including:
- ladder diagrams
- basic programming
- program modification
- ladder diagram development
- connecting the programmable controller
- programming timers, including:
- purpose of timers
- timer instructions
- on-delay and off-delay timer instruction
- programming timers
- retentive and non-retentive timers
- cascading timers
- the self-resetting timer
- monitoring timers
- circuit conversion
- programming counters, including:
- counter instructions
- retentive and non-retentive, up/down, programming, self-resetting and cascading counters
- circuit conversion
- program storage, including:
- PLC terms
- memory
- the programmable read only memory (PROM) pack
- printing ladder diagrams
- PLC input and output modules, including:
- purpose of modules
- analogue, dry contact, alternating current (a.c.) and direct current (d.c.) input modules
- relay, triac, transistor and analogue output modules
- PLC installation requirements, including:

- installation precautions
- safety systems
- mounting the PLC
- installation documentation
- routing signal and power cables
- earthing requirements
- master control, including:
- master control relay
- master control relay ladder diagram
- programming master control relays
- jump function, including:
- jump function
- jump function ladder diagram
- programming jump functions
- the shift register, including:
- purpose of registers
- the shift register
- shift register operation
- clock input
- shift register requirements
- programming shift registers
- the step sequencer, including:
- step sequencers
- step sequencer operation
- clock input
- step sequencer requirements
- programming step sequencer
- PLC diagnostics and fault finding, including:
- PLC fault finding
- controller status
- input/output (I/O) faults
- program faults
- relevant risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace documentation, including relevant industry standard documentation and regulations related to PLCs
- relevant workplace policies and procedures.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6