



Australian Government

**Assessment Requirements for MEM23116
Evaluate programmable logic controller
and related control system component
applications**

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Modification History

Release 1. Supersedes and is equivalent to MEM23116A Evaluate programmable logic controller and related control system component applications.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- identifying and assessing compliance with work health and safety (WHS) and regulatory requirements, and risk management procedures
- reviewing dangers and effects of electricity on humans
- identifying programmable logic controllers (PLC) related systems and components, integrating principles and techniques
- assessing suitability of programming
- investigating sustainability implications of PLC applications
- assessing and applying basic electrical and electronic control principles, controller programming principles and techniques, software basic analysis and graphics skills and techniques on at least two occasions
- evaluating components of applications against application specifications for safety, economy and fitness for purpose on at least two occasions
- reporting and documenting results of evaluation, including layouts, programs and flow charts or state diagrams and files.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- features of PLC and related control system component applications used in engineering environments
- effects of electricity on humans, dangerous high currents and voltages and automated systems, regulatory requirements related to extra low, low and high voltage applications
- relevant compliance requirements of WHS, regulations, codes of practice, standards, and risk assessment requirements for integrated manufacturing systems with emphasis on automation safety
- appropriate technical and professional assistance
- PLC software and programming language

- hardware functions, options and integration into plc and related control systems
- input devices and sensors
- output devices/actuators
- PLCs
- interfacing and signal conditioning
- data and communications protocols and standards
- communications and networking options for devices
- HMIs and GUIs
- PLC architecture
- input/output (I/O) functions and arrangements
- typical input signals and sensor and transducers
- shielding and twisted pairing for noise mitigation
- calibration techniques
- reading of discrete levels from analog input data (other analog I/O functions not required by this unit)
- input signal conditioning

digitally driven output devices and interface requirements power supply programming techniques and options.

Assessment Conditions

- Assessors must:
 - have vocational competency in evaluating programmable logic controller and related control system component applications at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015 or its replacement* and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- 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.
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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>