



**Australian Government**

**Assessment Requirements for MEM23112  
Investigate electrical and electronic  
controllers in engineering applications**

**Release: 1**

# Assessment Requirements for MEM23112 Investigate electrical and electronic controllers in engineering applications

## Modification History

Release 1. Supersedes and is equivalent to MEM23112A Investigate electrical and electronic controllers in engineering 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 applying work health and safety (WHS), regulatory and risk management procedures
- reviewing dangers and the effects of electricity on humans
- identifying effects and dangers of electricity, automated systems and specialist requirements including licensing related to technical work
- reviewing sustainability implications, functions and features of controllers and related devices, machines and systems on at least two occasions
- assessing and applying basic electrical and electronic control principles, controller programming principles and techniques to simple machine control functions on at least two occasions
- ensuring safe electrical working practice
- ensuring clear and logical process of analysis
- reporting and documenting processes and results of evaluation including calculations, diagrams, programs 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:

- effects of electricity on humans
- electrical laws:
  - Ohm's law
  - Kirchhoff's voltage and current laws
  - analogies with hydraulics, pressure drop and continuity
- function of controllers used in engineering applications
- licensed technical and professional assistance
- automated systems and mechatronic devices (note: this unit does not include design or modification of interfacing with these devices)

- common software requirements of control systems, including supervisory control and data acquisition (SCADA), distributed control systems (DCS) and programming
- programmable logic controllers (PLC) and microcontroller basic programming functions
- SCADA including basic editing and programming techniques
- documentation techniques, circuit diagrams, programs and applications
- specifications for hardware applicable to controller techniques in engineering.
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## Assessment Conditions

- Assessors must:
  - have vocational competency in investigating electrical and electronic controllers in engineering 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

The MEM Metal and Engineering Training Package Companion Volume Implementation Guide is available from VETNet -

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