Australian Government

# Assessment Requirements for MEM23130 Coordinate servicing and fault-finding of HVACR control systems

**Release: 1**

# Assessment Requirements for MEM23130 Coordinate servicing and fault-finding of HVACR control systems

## Modification History

Release 1. Supersedes and is equivalent to MEM23130A Coordinate servicing and fault finding of HVACR control systems.

## 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:

- interpreting drawings, diagrams, manuals and design information to determine heating, ventilation, air conditioning and refrigeration (HVACR) control system layout, components and functions
- communicating HVACR servicing and fault-finding tasks and requirements on at least two occasions
- identifying relevant work health and safety (WHS), other regulatory requirements, standards and codes
- investigating sustainability implications of HVACR control systems
- assessing HVACR control system and hardware on at least two occasions, including building management system control systems
- selecting and using appropriate analysis and simulation software and validation techniques
- reviewing thermal loads, hardware, energy options, tariffs, consumption, benchmarks and comparative tariffs
- mapping and monitoring control system, input/output (I/O), hardware and energy use on at least two occasions
- optimising HVACR control system for seasonal and load cycles
- measuring control system performance
- developing optimal control diagram and settings
- reporting and documenting results including efficiency evaluations, maps and diagrams, programs, analysis and simulation files and conclusions.

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:

- WHS and regulatory requirements, codes of practice, standards, risk management and registration requirements
- sources of professional and technical assistance

- trends in HVACR system design, installation, operation and maintenance including integration with energy management systems
- current options and trends in performance analysis software including underpinning program techniques
- HVACR control systems applications
- sustainability implications of HVACR systems control and energy management systems
- analog and digital inputs and outputs
- building management systems features and functions related to HVACR and integration with other features including:
  - lighting, alarms and security
  - multi-zone operation
  - operating modes including occupied, unoccupied, morning warm-up, and night-time setback
- features, components, functions, protocols and topology of HVACR control systems including:
  - protocols and topology
  - control settings
  - I/O devices and techniques
  - software and programming techniques
  - proportional-integral-derivative (PID) controller functions in HVACR control systems
- interface principles and techniques for electrical, electronic, pneumatic and hydraulic sensors and actuators
- HVACR principles and techniques related to energy distribution and consumption
- passive characteristics and heat load on the system under control
- daily, seasonal and annual HVACR load cycles
- sources of technical and professional assistance for engineering specialisations
- energy options, unit tariffs, system and component consumption and benchmarks for energy costs and comparative tariffs
- testing and measuring devices and materials and their calibration, set-up, test and use
- analysis techniques including use of analysis and simulation software and software validation techniques.
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## Assessment Conditions

- Assessors must:
  - have vocational competency in coordinating servicing and fault finding of HVACR control systems 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