



Australian Government

Assessment Requirements for UEERA0033
Diagnose faults in complex
HVAC/refrigeration control systems

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.

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 one occasion and include:

- applying logical diagnostic methods
- using fault scenarios to test the cause of system faults
- identifying faults and competency needed to rectify them
- rectifying faults in system controls
- verifying that the system operates correctly
- documenting fault rectification
- dealing with unplanned events
- applying relevant legislation, industry standards, codes of practice and regulations
- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements, including:
 - applying safe working practices
 - hazard identification and reporting
 - implementing risk control measures
- determining need to test or measure live work
- diagnosing faults in complex refrigeration or heating, ventilation and air conditioning (HVAC) control systems
- isolating circuits/machines/plant
- using relevant tools, equipment and testing devices.

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:

- complex HVAC/refrigeration control systems, fault finding, safe working practices and relevant standards, codes and regulations, including:
 - control fundamentals, including:
 - control terminology

- refrigeration system characteristics
- HVAC system characteristics
- control system characteristics
- control system components
- control system diagrams and symbols
- product knowledge
- types of control equipment, including:
 - electrical:
 - classification of circuits
 - two position control
 - floating control
 - sensors
 - controllers
 - flow control devices
 - control systems diagrams
 - electronic:
 - operating principles
 - sensors
 - controllers
 - control system diagrams
- digital control systems, including:
 - computer-based control fundamentals:
 - definitions
 - principles
 - controller configuration:
 - equipment
 - zone level controllers
 - system level controllers
 - controller software:
 - operating software
 - application software
 - controller programming:
 - system diagrams
 - control diagrams
 - configuration
 - programming
 - initialisation
 - EMS and BMS
 - supervisory control and data acquisition (SCADA) system

- lan and Bacnet
- control systems applications, including:
 - refrigeration
 - air conditioning:
 - air handling system controls
 - ventilation
 - heating
 - building airflow system control
 - airflow control
 - singles and multi-zones
 - chiller/boiler and distribution system control (chilled water, boiler and distribution systems)
 - diagnostic methods, measurements and estimations
 - faults within scope of work
 - relevant manufacturer specifications
 - relevant WHS/OHS legislated requirements, including:
 - risk control measures
 - relevant workplace documentation
 - 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 suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable 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 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>