



Australian Government

**Assessment Requirements for UEERA0018
Design complex commercial refrigeration
systems and select equipment**

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:

- developing outlines of alternative designs
- developing the design within the safety, regulatory, functional requirements and budget limitations
- documenting and presenting design effectively
- successfully negotiating design alteration requests
- obtaining approval for final design
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements, including using risk control measures
- designing complex commercial refrigeration system
- preparing to design complex commercial refrigeration system.

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 commercial refrigeration system design, safe working practices and relevant standards, codes and regulations, including:
 - commercial refrigeration system types:
 - medium and low temperature applications
 - operating conditions
 - system operating and service requirements
 - refrigerant types
 - components
 - multiple evaporator systems
 - multiple temperature systems

- multiple compressor (rack) systems
- two stage compressors
- multiplex systems
- defrost requirements and methods
- electric defrost systems
- hot gas defrost systems
- cool gas defrost systems
- manufacturer's data:
 - rating tables
 - selection tables
 - catalogues
- operating characteristics:
 - effects of temperature glide with blended refrigerants
 - p-H charts
 - refrigerating effect
 - heat of compression
 - heat rejected on high side of the system
 - required mass flowrate of refrigerant
 - volume flowrate at various points in system
 - theoretical compressor power
 - required condenser capacity
- refrigerant flow controls:
 - refrigerant regulating valves
 - solenoid valves
 - expansion valves
 - pressure regulating valves
- automatic systems controls:
 - cycling controls
 - pressure-stats
 - thermo-stats
 - defrost controls
 - monitoring and alarm controls
 - energy management systems
 - refrigeration automation system
 - control strategies
 - control modes
- system design:
 - required cooling capacity per day
 - running time and required system cooling capacity

- system capacity control for peak and low load
- refrigeration system diagrams
- refrigerant, equipment, major component, controls, piping and accessory selection
- problem-solving techniques
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace budget, quality, policies and procedures
- relevant workplace documentation.

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 suitable 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, facilities and equipment 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>