



**Australian Government**

**Assessment Requirements for UEERA0025  
Design industrial refrigeration systems and  
select components**

**Release: 1**

# Assessment Requirements for UEERA0025 Design industrial refrigeration systems and select components

## 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:

- understanding required operating functions and parameters from the design specification
- developing the design within the safety, regulatory and 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 (OHS) requirements, including using risk control measures
- designing industrial refrigeration systems
- preparing to design industrial refrigeration systems.

## 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:

- industrial refrigeration systems design and component selection, fundamentals, safe working practices and relevant standards, codes and regulations including:
  - relevant industry practices:
    - AS/NZS 1677 Refrigerating systems SAA refrigeration code
    - AS/NZS 3666 Air-handling and water systems of buildings
    - ozone protection regulations
    - IIAR ammonia data book
    - ANSI/IIAR standards
    - ANSI/ASHRAE mechanical refrigeration and IIAR bulletins and standards (list will be provided by Rama)
    - equipment manufacturer's specifications and practices

- operating characteristics:
  - pH charts
  - refrigerating effect, relate back to air and fluid coolers
  - heat of compression, relate back to screw, rotary and reciprocating compressors
  - heat rejected high side of the system, relate back to air cooled, evaporative, and water-cooled condensers
  - variable liquid refrigeration systems and liquid oversee systems
  - required mass flow rate of refrigerant and volume flow rate at various points in system
  - theoretical compressor power
  - required condenser capacity
- major system components:
  - refrigerants, including R717 and R22
  - secondary refrigerants
  - component lubricant refrigerant compatibility
  - evaporators
  - condensers and cooling towers
  - compressors
  - expansion valves
  - interconnecting piping and
  - isolating valves
  - pilot-operated valves
  - defrost system components for air, water, recycled water, hot gas and electric methods
  - refrigerant accumulators and liquid pumps
- 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 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, 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>