



Australian Government

**UEE62520 Advanced Diploma of Air
Conditioning and Refrigeration
Engineering**

Release 2

UEE62520 Advanced Diploma of Air Conditioning and Refrigeration Engineering

Modification History

Release 2: This minor update is the second release of this qualification in the UEE Electrotechnology Training Package.

Two units added to general electives.

Imported elective units updated.

Release 1. This is the first release of this qualification in the UEE Electrotechnology Training Package

Qualification Description

This qualification covers competencies to design and validate/evaluate refrigeration and air conditioning equipment and systems, manage risk, estimate and manage projects and provide technical advice/sales. It includes regulatory requirements for purchasing and handling refrigerants.

It develops competencies in the ethical and responsible application of mathematics, science, engineering techniques, standards and codes of practice, engineering design practices, supervision and management of physical, human and financial resources in refrigeration and air conditioning engineering.

Competency development activities in this qualification are subject to regulations directly related to licencing. A relevant contract of training through an apprenticeship or relevant employment may be required to enable the application of the required knowledge and skills to on the job work activities and environments.

Refrigerant Handling Licence:

The achievement of the qualification meets the training components for the full national Refrigerant Handling Licence which is required to work on refrigeration and air conditioning equipment that carries the risk of a fluorocarbon refrigerant being emitted while decanting the refrigerant or manufacturing, installing, commissioning, servicing, maintaining or decommissioning refrigeration and air conditioning equipment.

Refrigeration and Air Conditioning Occupational Licence:

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to refrigeration/air conditioning work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Electrical Occupation Licence:

The achievement of this qualification with the core restricted electrical units meet the electrical regulatory requirements for related restricted electrical work in most state/territories. This is required to work on electrical installations which are designed to operate at voltages greater than

50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

A total of **2230 weighting points** comprising:

1980 core weighting points listed below; **plus**

250 general elective weighting points from the general elective units listed below.

Choose a total of **250 weighting points** elective units from the list below, of which between 0 and 120 **weighting points** can be taken from Group A; and between 0 and 30 **weighting points** can be taken from Group B; and between 0 and 60 **weighting points** can be taken from Group C; and between 0 and 120 **weighting points** can be taken from Group D; and between 120 and 250 **weighting points** must be taken from Group E; or all electives units of 250 **weighting points** can be taken from Group E.

Up to 120 weighting points of the general elective units Group A, may be selected, with appropriate contextualisation, from any relevant nationally endorsed Training Package or accredited course, provided selected units contribute to the vocational outcome of the qualification. Previously assigned weighting points are listed in the UEE Electrotechnology Training Package Companion Volume Implementation Guide (CVIG), if not listed weighting points will be 10 points, unless directed from the Electrotechnology Industry Reference Committee (IRC).

There are units of competency within this qualification that contain pre-requisites. Units of competency that have a pre-requisite requirement are identified by this symbol *. Refer directly to the units of competency to identify pre-requisite requirements to ensure all are complied with. A list of all pre-requisites is also provided in the UEE Pre-requisites Companion Volume.

Where imported units are selected, care must be taken to ensure all pre-requisite units specified are complied with.

Core units		Weighting Points
UEECD0003	Apply industry and community standards to engineering activities	20
UEECD0007	Apply work health and safety regulations, codes and practices in the workplace	20
UEECD0010	Compile and produce an energy sector detailed report	60
UEECD0016	Document and apply measures to control WHS risks associated with electrotechnology work*	20

UEECD0017	Establish and follow a competency development plan in an electrotechnology engineering discipline	120
UEECD0019	Fabricate, assemble and dismantle utilities industry components*	40
UEECD0020	Fix and secure electrotechnology equipment*	20
UEECD0024	Implement and monitor energy sector WHS policies and procedures	20
UEECD0026	Manage risk in electrotechnology activities	60
UEECD0042	Solve problems in ELV single path circuits*	40
UEECD0051	Use drawings, diagrams, schedules, standards, codes and specifications*	40
UEECS0033	Use engineering applications software on personal computers	40
UEERA0001	Analyse the operation of HVAC air and hydronic systems*	80
UEERA0002	Analyse the psychrometric performance of HVAC/R systems*	50
UEERA0004	Analyse vibration and noise in refrigeration and air conditioning systems*	80
UEERA0031	Diagnose and rectify faults in air conditioning and refrigeration control systems*	60
UEERA0034	Establish heat loads for commercial refrigeration and/or air conditioning applications*	80
UEERA0035	Establish the basic operating conditions of air conditioning systems*	20
UEERA0036	Establish the basic operating conditions of vapour compression systems*	60
UEERA0038	Establish the thermodynamic parameters of refrigeration and air conditioning systems*	80
UEERA0042	Evaluate thermodynamic and fluid parameters of refrigeration systems*	100

UEERA0044	Find and rectify faults in single phase motors and associated controls*	40
UEERA0045	Find and rectify faults in three phase motors and associated controls*	30
UEERA0050	Install refrigerant pipe work, flow controls and accessories*	60
UEERA0051	Install, commission, service and maintain air conditioning systems*	80
UEERA0052	Install, commission, service and maintain low temperature systems*	40
UEERA0053	Install, commission, service and maintain medium temperature systems*	60
UEERA0055	Manage refrigeration and air conditioning projects	40
UEERA0058	Plan refrigeration and air conditioning projects	60
UEERA0059	Prepare and connect refrigerant tubing and fittings*	40
UEERA0061	Produce HVAC/R system design drawings*	80
UEERA0062	Recover and charge refrigerants*	40
UEERA0079	Safely handle refrigerants and lubricants*	40
UEERA0081	Select refrigerant piping, accessories and associated controls*	40
UEERA0092	Solve problems in low voltage refrigeration and air conditioning circuits*	40
UEERA0094	Verify functionality and compliance of refrigeration and air conditioning installations*	40
UEERE0013	Develop strategies to address environmental and sustainability issues in the energy sector	20
UEERL0001	Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply*	20
UEERL0002	Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c.*	20

UEERL0004	Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring*	60
UEERL0005	Locate and rectify faults in low voltage (LV) electrical equipment using set procedures*	20

Group A: Imported and common elective units.**Weighting Points**

BSBLDR522	Manage people performance	70
BSBINS501	Implement information and knowledge management systems	50
BSBSTR502	Facilitate continuous improvement	60
BSBSTR501	Establish innovative work environments	50
BSBTWK502	Manage team effectiveness	60
CPCCWHS1001	Prepare to work safely in the construction industry	10
HLTAID009	Provide cardiopulmonary resuscitation	10
MEM16006	Organise and communicate information*	20
MEM16008	Interact with computing technology*	20
MEM30031A	Operate computer-aided design (CAD) system to produce basic drawing elements	40
MEM30032A	Produce basic engineering drawings	80
MEM30033A	Use computer-aided design (CAD) to create and display 3-D models*	40

Group B: Qualification elective units.**Weighting Points**

UEERA0005	Apply safety awareness and legal requirements for ammonia refrigerant	10
UEERA0006	Apply safety awareness and legal requirements for carbon dioxide refrigerant	10
UEERA0007	Apply safety awareness and legal requirements for flammable refrigerants	10

UEERA0046	Install and commission ammonia refrigeration systems, components and associated equipment*	20
UEERA0047	Install and commission carbon dioxide refrigeration systems, components and associated equipment*	20
UEERA0048	Install and commission flammable refrigerant air conditioning and refrigeration systems*	20
UEERA0054	Maintain microbial control of refrigeration and air conditioning systems	20
UEERA0065	Repair and service ammonia refrigeration systems*	20
UEERA0066	Repair and service carbon dioxide refrigeration systems*	20
UEERA0067	Repair and service secondary refrigeration systems*	20
UEERA0068	Repair and service self-contained carbon dioxide refrigeration and heat pump systems*	20
UEERA0069	Resolve problems in beverage dispensers*	40
UEERA0070	Resolve problems in central plant air conditioning systems*	40
UEERA0071	Resolve problems in dairy refrigeration systems*	20
UEERA0072	Resolve problems in hydronic systems*	40
UEERA0073	Resolve problems in ice making systems*	20
UEERA0075	Resolve problems in post-mix refrigeration systems*	20
UEERA0076	Resolve problems in refrigerated beverage vending cabinets*	20
UEERA0077	Resolve problems in transport refrigeration systems*	20
UEERA0078	Resolve problems in ultra-low temperature refrigeration systems*	20
UEERA0084	Service and repair self-contained flammable refrigerants air conditioning and refrigeration systems*	20
UEERA0097	Install, commission, service and maintain variable refrigerant flow air conditioning systems*	40

UEERA0096 Inspect, test and repair fire and smoke control features of mechanical services systems* 40

Group C: Qualification elective units.

Weighting Points

UEECO0001 Estimate electrotechnology projects 40

UEERA0060 Produce HVAC/R control system diagrams* 40

UEERA0080 Select basic commercial refrigeration system equipment, components and accessories* 40

UEERA0082 Select residential air conditioning system equipment, components and accessories* 40

UEERE0015 Implement and monitor energy sector environmental and sustainable policies and procedures 20

Group D: Qualification elective units.

Weighting Points

UEECD0014 Develop design briefs for electrotechnology projects 40

UEECD0039 Provide solutions to basic engineering computational problems* 60

UEECO0014 Prepare tender submissions for electrotechnology projects* 60

UEERA0014 Design ammonia refrigerated systems* 40

UEERA0015 Design carbon dioxide refrigerated systems* 40

UEERA0016 Design commercial refrigeration systems and select components* 80

UEERA0021 Design control systems for refrigeration or heating, ventilation and air conditioning systems* 80

UEERA0022 Design heating, ventilation and air conditioning (HVAC) systems and select components* 60

UEERA0023 Design hydrocarbon refrigerated systems* 40

UEERA0025 Design industrial refrigeration systems and select components* 80

UEERA0027 Design secondary refrigerant systems* 40

UEERA0039	Evaluate and report on building services energy management systems*	80
UEERA0040	Evaluate and report on the indoor air quality of buildings*	40
UEERE0012	Develop effective engineering strategies for energy reduction in buildings*	60

Group E: Qualification elective units.**Weighting Points**

UEECO0003	Manage contract variations	40
UEERA0008	Audit HVAC/R control systems for compliance with regulations and standards*	60
UEERA0009	Audit energy use for commercial HVAC/R systems*	40
UEERA0017	Design complex air conditioning systems and select equipment*	120
UEERA0018	Design complex commercial refrigeration systems and select equipment*	40
UEERA0019	Design complex control systems for refrigeration or heating, ventilation, air conditioning systems*	80
UEERA0020	Design complex industrial refrigeration systems and select equipment*	40
UEERA0024	Design hydronic systems and select equipment*	80
UEERA0026	Design mechanical ventilation/exhaust systems and select equipment*	40
UEERA0029	Develop heat exchanger design specifications*	80
UEERA0030	Develop specifications and prepare drawings for HVAC/R projects*	60
UEERA0041	Evaluate new and alternative technologies applicable to electrotechnology applications	40

Qualification Mapping Information

This qualification replaces and is equivalent to UEE62511 Advanced Diploma of Air-conditioning and Refrigeration Engineering

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>