



Australian Government

Department of Education, Employment and Workplace Relations

UEE62511 Advanced Diploma of Air-conditioning and Refrigeration Engineering

Release: 1

UEE62511 Advanced Diploma of Air-conditioning and Refrigeration Engineering

Modification History

Not Applicable

Description

Scope

This qualification provides 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.

Note:

The Ozone Protection and Synthetic Greenhouse Gas Legislation Amendment Bill 2003 apply to this qualification. Prior to planning the delivery of any training and/or assessment activities all legislative and regulatory requirements shall be identified and included.

The core competencies of this qualification meet the prescribed requirements for Engineering Associate membership of Engineers Australia.

Participants seeking Engineers Australia membership should ensure that their training provider is accredited by that body to provide Engineering Education Programs at the level of Engineering Associate.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Not Applicable

Employability Skills Summary

Not Applicable

Packaging Rules

Completion requirements

The requirements for granting this qualification will be met when competency is demonstrated and achieved for:

- All the Core competency standard units, and
- A combination of Elective competency standard units selected From Group A, B, C, D and/or Group E to achieve a total weighting of 250 points, and
- All the required pre-requisite competency standard units.

Note: UEENEEJ109A - Those holding an 'Certificate III in Refrigeration and Air-conditioning trade qualification or equivalent" meet the requirements of this unit and its pre-requisite requirements.

Core Competency Standard Units All Core competency standard units to be achieved		Weighting Points
UEENEE004B	Use engineering applications software	40
UEENEE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace	20
UEENEE102A	Fabricate, assemble and dismantle utilities industry components	40
UEENEE003B	Solve problems in extra-low voltage single path circuits	40
UEENEE105A	Fix and secure electrotechnology equipment	20
UEENEE107A	Use drawings, diagrams, schedules, standards, codes and specifications	40
UEENEE011C	Manage risk in electrotechnology activities	60
UEENEE017B	Implement and monitor OHS policies and procedures	20
UEENEE024C	Compile and produce an electrotechnology report	60
UEENEE080A	Apply industry and community standards to engineering activities	20
UEENEE083A	Establish and follow a competency development plan in an electrotechnology engineering discipline	120
UEENEE137A	Document and apply measures to control OHS risks associated with electrotechnology work	20

Core Competency Standard Units All Core competency standard units to be achieved		Weighting Points
UEENEEJ040B	Manage refrigeration and air conditioning projects	40
UEENEEJ069B	Plan refrigeration and air conditioning projects	60
UEENEEJ102A	Prepare and connect refrigerant tubing and fitting	30
UEENEEJ103A	Establish the basic operating conditions of vapour compression systems	60
UEENEEJ104A	Establish the basic operating conditions of air conditioning systems	20
UEENEEJ106A	Install refrigerant pipe work, flow controls and accessories	60
UEENEEJ107A	Install air conditioning and refrigeration systems, major components and associated equipment	80
UEENEEJ108A	Recover, pressure test, evacuate, charge and leak test refrigerants	60
UEENEEJ109A	Verify functionality and compliance of refrigeration and air conditioning installations	20
UEENEEJ110A	Select refrigerant piping, accessories and associated controls	50
UEENEEJ111A	Diagnose and rectify faults in air conditioning and refrigeration systems and components	40
UEENEEJ113A	Commission air conditioning and refrigeration systems	40
UEENEEJ127A	Establish the thermodynamic parameters of refrigeration and air conditioning systems	80
UEENEEJ128A	Produce HVAC/R system design drawings	80
UEENEEJ129A	Establish heat loads for commercial refrigeration and/or air conditioning applications	80
UEENEEJ138A	Analyse vibration and noise in refrigeration and air conditioning systems	80
UEENEEJ153A	Find and rectify faults in motors and associated	50

Core Competency Standard Units All Core competency standard units to be achieved		Weighting Points
	controls in refrigeration and air conditioning systems	

Core Competency Standard Units All Core competency standard units to be achieved		Weighting Points
UEENEEJ164A	Analyse the operation of HVAC air and hydronic systems	80
UEENEEJ165A	Evaluate thermodynamic and fluid parameters of refrigeration systems	100
UEENEEJ170A	Diagnose and rectify faults in air conditioning and refrigeration control systems	70
UEENEEJ192A	Analyse the psychrometric performance of HVAC/R systems	50
UEENEEJ194A	Solve problems in low voltage refrigeration circuits	40
UEENEEP012A	<i>Disconnect / reconnect composite appliances connected to low voltage installation wiring</i>	60
UEENEEP017A	Locate and rectify faults in low voltage composite appliances using set procedures	20
UEENEEP024A	Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply	20
UEENEEP025A	Attach cords, cables and plugs to electrical equipment for connection to 1000 Va.c. or 1500 Vd.c. supply	20
UEENEEK032B	Develop strategies to address sustainability issues	20
Total points in core		1910

Elective Competency Standard Units Complete Elective units to achieve a total of weighting of 250 points from the following groups:		
Group	Minimum points	Maximum points
A Imported and Common Elective Units Imported units from other training packages and/or state accredited courses can be added to this group, but they must be selected from qualifications where the unit is first packaged at AQF level 6. If units have not being	0	120

Elective Competency Standard Units

Complete Elective units to achieve a total of weighting of 250 points from the following groups:

	assigned a weighting in the Electrotechnology Training Package, their weighting will be 10 points.		
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Elective Competency Standard Units			
Complete Elective units to achieve a total of weighting of 250 points from the following groups:			
B	Qualification Electives - Schedule 2-3 Units	0	40
C	Qualification Electives - Schedule 4 Units	0	60
D	Qualification Electives - Schedule 5 Units	0	120
E	Qualification Electives - Schedule 6 Units You may select the majority of your elective units from this Group	120	250

Group A - Imported and Common Electives Units		Weighting Points
BSBMGT502B	Manage people performance	70
BSBINM501A	Manage an information or knowledge management system	50
BSBMGT516C	Facilitate continuous improvement	60
BSBINN502A	Build and sustain an innovative work environment	50
BSBWOR502B	Ensure team effectiveness	60
CPCCOHS1001A	Work safely in the construction industry	10
HLTCPR201A	Perform CPR	10
MEM16006A	Organise and communicate information	20
MEM16008A	Interact with computing technology	20
MEM30001A	Use computer aided drafting systems to produce basic engineering drawings	40
MEM30002A	Produce basic engineering graphics	40

Group A - Imported and Common Electives Units		Weighting Points
MEM30003A	Produce detailed engineering drawings	80
MEM30004A	Use CAD to create and display 3D models	40
	<p>Imported units from other training packages and/or state accredited courses can be added to this group, but they must be selected from qualifications where the unit is first packaged at AQF level 6. If units have not being assigned a weighting in the Electrotechnology Training Package, their weighting will be 10 points.</p> <p>Note: For further information see <i>Transition to NQC Packaging Rules for Flexibility</i>, Page 48, UEE07 Electrotechnology Training Package, Version 4, Volume 1 Preliminary Information.</p>	Up to 125 points

Group B - Qualification Electives - Schedule 2-3 Units		Weighting Points
UEENEEJ114A	Resolve problems in hydronic systems	40
UEENEEJ115A	Resolve problems in beverage dispensers	40
UEENEEJ116A	Resolve problems in transport refrigeration systems	20
UEENEEJ117A	Resolve problems in ultra-low temperature refrigeration systems	20
UEENEEJ118A	Resolve problems in post mix refrigeration systems	20
UEENEEJ119A	Resolve problems in ice making systems	20
UEENEEJ166A	Resolve problems in dairy refrigeration systems	20
UEENEEJ167A	Resolve problems in central plant air conditioning systems	40
UEENEEJ168A	Maintain microbial control of refrigeration and air conditioning systems	20
UEENEEJ171A	Resolve problems in refrigerated beverage vending cabinets	20
UEENEEJ174A	Apply safety awareness and legal requirements for hydrocarbon refrigerants	10
UEENEEJ175A	Service and repair self contained hydrocarbon air conditioning and refrigeration systems	20
UEENEEJ176A	Install and commission hydrocarbon refrigeration systems, components and associated equipment	20
UEENEEJ178A	Apply safety awareness and legal	10

Group B - Qualification Electives - Schedule 2-3 Units		Weighting Points
	requirements for ammonia refrigerant	

Group B - Qualification Electives - Schedule 2-3 Units		Weighting Points
UEENEEJ179A	Repair and service ammonia refrigeration systems	20
UEENEEJ180A	Install and commission ammonia refrigeration systems, components and associated equipment	20
UEENEEJ182A	Repair and service secondary refrigeration systems	20
UEENEEJ184A	Apply safety awareness and legal requirements for carbon dioxide refrigerant	10
UEENEEJ185A	Repair and service carbon dioxide refrigeration systems	20
UEENEEJ186A	Install and commission carbon dioxide refrigeration systems, components and associated equipment	20
UEENEEJ188A	Repair and service self contained carbon dioxide refrigeration and heat pump systems	20

Group C - Qualification Electives - Schedule 4 Units		Weighting Points
UEENEEC005B	Estimate electrotechnology projects	40
UEENEEJ130A	Produce HVAC/R control system diagrams	40
UEENEEJ190A	Select basic commercial refrigeration system equipment, components and accessories	40
UEENEEJ191A	Select residential air conditioning system equipment, components, and accessories	40
UEENEK045A	Implement&monitor, policies&procedures for	20

Group C - Qualification Electives - Schedule 4 Units		Weighting Points
	environmentally sustainable electrotech work practice	

Group C - Qualification Electives - Schedule 4 Units		Weighting Points
Group D - Qualification Electives - Schedule 5 Units		Weighting Points
UEENEEC006B	Prepare tender submissions for electrotechnology projects	60
UEENEEE015B	Develop design briefs for electrotechnology projects	40
UEENEEE026B	Provide computational solutions to basic engineering problems	40
UEENEEJ132A	Design commercial refrigeration systems and select components	80
UEENEEJ133A	Design industrial refrigeration systems and select components	80
UEENEEJ134A	Design heating, ventilation and air conditioning (HVAC) systems and select components	60
UEENEEJ135A	Design control systems for refrigeration or heating, ventilation and air conditioning systems	80
UEENEEJ136A	Evaluate and report on building services energy management systems	80
UEENEEJ137A	Evaluate and report on the indoor air quality of buildings	40
UEENEEJ177A	Design hydrocarbon refrigerated systems	40
UEENEEJ181A	Design ammonia refrigerated systems	40
UEENEEJ183A	Design secondary refrigerant systems	40
UEENEEJ187A	Design carbon dioxide refrigerated systems	40
UEENEEK051A	Develop effective strategies for	120

Group C - Qualification Electives - Schedule 4 Units		Weighting Points
	energy reduction in buildings	
Group E - Qualification Electives - Schedule 6 Units You may select the majority of your elective units from this Group		Weighting Points
UEENEEC007B	Manage contract variations	40
UEENEEJ139A	Develop specifications and prepare drawings for HVAC/Refrigeration projects	60
UEENEEJ141A	Design complex commercial refrigeration systems and select equipment	40
UEENEEJ142A	Design complex industrial refrigeration systems and select equipment	40
UEENEEJ143A	Design complex air conditioning systems and select equipment	120
UEENEEJ144A	Design mechanical ventilation/exhaust systems and select equipment	40
UEENEEJ145A	Design hydronic systems and select equipment	80
UEENEEJ146A	Design complex control systems for refrigeration or heating, ventilation, air conditioning systems	80
UEENEEJ147A	Audit energy use for commercial HVAC/Refrigeration systems	40
UEENEEJ148A	Audit HVAC/R control systems for compliance with regulations and standards	60
UEENEEJ149A	Develop heat exchanger design specifications	80
UEENEEJ150A	Evaluate new and alternative technologies applicable to	40

Group C - Qualification Electives - Schedule 4 Units		Weighting Points
	electrotechnology applications	

- Note:**
1. Pre-requisite pathways shall be identified and met for all elective units selected.
 2. In selecting elective units considerations to career planning advice should be given to units that form part of a pre-requisite pathway for the progression to achieve particular competencies or qualification at a higher level.
 3. Registered training organisations shall also provide information related to the relevant pathway(s) that may be taken to achieve paraprofessional status ("associate membership") with a professional engineering membership organisation.

END OF QUALIFICATION