

**UEE3 13 06****Certificate III in Refrigeration and Air-conditioning****National Qualification Number UEE3 13 06****Scope**

This qualification provides competencies to select components, install, set up, test, fault find, repair and maintain refrigeration systems and equipment that apply to food storage and preservation, air conditioning and air distribution equipment in buildings and premises. It includes regulatory requirements for purchasing and handling refrigerants.

**Completion requirements**

The requirement for awarding this qualification is that the following are successfully achieved:

- All of the Core competency standard units;
- The required number of Stream Core competency standard units;
- The required number of Elective competency standard units as prescribed in the respective Schedule; and
- All the required prerequisite competency standard units have been met as required.

**Core Competency Standard Units**

All Core competency standard units to be achieved

UEENECC025A	Participate in refrigeration and air conditioning work and competency development activities
UEENEEE001A	Apply OHS practices in the workplace
UEENEEE002A	Dismantle, assemble and fabricate electrotechnology components
UEENEEE003A	Solve problems in extra-low voltage single path circuits
UEENEEE005A	Fix and secure equipment
UEENEEE007A	Use drawings, diagrams, schedules and manuals
UEENEEE036A	Document occupational hazards and risks in refrigeration and Air-conditioning
UEENEEJ002A	Prepare refrigeration tubing and fittings
UEENEEJ003A	Determine the basic operating conditions of vapour compression systems
UEENEEJ004A	Determine the basic operating conditions of air conditioning systems
UEENEEJ006A	Install pipework for refrigeration and air conditioning systems
UEENEEJ007A	Install refrigeration and air conditioning systems, major components and associated equipment
UEENEEJ008A	Recover, pressure and leak test, evacuate and charge refrigerants
UEENEEJ009A	Verify compliance and functionality of refrigeration and air conditioning installations
UEENEEJ010A	Select refrigeration pipe/tube, accessories and associated controls

### Core Competency Standard Units

All Core competency standard units to be achieved

UEENEEJ011A	Diagnose and rectify faults in refrigeration and air conditioning systems and components
UEENEEJ013A	Commission refrigeration and air conditioning systems
UEENEEJ053A	Find and rectify faults in appliance motors and associated controls
UEENEEJ070A	Diagnose and rectify faults in refrigeration and air conditioning control systems
UEENEEP001A	Disconnect and reconnect fixed wired electrical equipment connected to a low voltage supply
UEENEEP002A	Attach cords and plugs to electrical equipment for connection to a single phase 250 Volt supply
UEENEEP003A	Attach cords and plugs to electrical equipment for connection to 1000 Va.c. or 1500 Vd.c. supply
UEENEEP007A	Locate and rectify faults in electrical low voltage equipment following prescribed procedures

### Stream Core Competency Standard Units

At least 2 of the following competency standard units to be achieved

UEENEEC001A	Maintain documentation
UEENEEC002A	Source and purchase material/parts for installation or service jobs
UEENEEC003A	Provide quotations for installation or service jobs
UEENEEC010A	Deliver a service to customers
UEENEEED001A	Use basic computer applications relevant to a workplace
UEENEEE009A	Comply with scheduled and preventative maintenance program processes
UEENEEE020A	Provide basic instruction in the use of electrotechnology apparatus
UEENEEK042A	Participate in environmentally sustainable work practices

### Elective Competency Standard Units

In accordance with Schedule 3, which forms an integral part of this qualification, achieve a Unit Strand Total of at least 3 as specified.

**Note:**

1. Prerequisite 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 prerequisite pathway for the progression to achieve particular competencies or qualification at a higher level.

END OF QUALIFICATION

### Schedule of Electives – 3

Competency standard units have been put into strands to facilitate work outcomes for the qualification, as specified by industry stakeholders. This design feature has been developed to enhance flexibility for enterprise outcomes.

The following provides examples on the use of the Schedules in selecting appropriate competency standard units to complete the elective requirements of the qualification:

- 1 unit from strand 6, gives a unit strand total of 6
- 2 units from strand 3, gives a unit strand total of 6
- 1 unit from strand 5 PLUS 1 unit from strand 1, gives a unit strand total of 6

#### Notes:

1. All prerequisites must be met prior to completing each competency standard unit.
2. Where a competency standard unit is achieved as part of the core of a qualification it shall not be used again for selection as an elective unit.

### Strand 6

#### Schedule 3 – Strand 6 Electives

UEENEEA010A	Assemble, mount and connect switchgear and controlgear
UEENEDD012A	Support computer hardware and software
UEENEEF002A	Lay and connect cables for multiple access to telecommunication services
UEENEEF010A	Select and arrange equipment for local area networks
UEENEEG007A	Select and arrange equipment for general electrical installations
UEENEEG015A	Find and rectify faults in energy supply network equipment
UEENEEG052A	Rewind single phase induction machines
UEENEEG053A	Rewind three phase induction machines rated for low voltage
UEENEEG054A	Rewind direct current machines rated for low voltage
UEENEEH006A	Assemble and set up fixed audio/video components and systems in buildings and premises
UEENEEH010A	Install commercial audio/video system components
UEENEEH017A	Carry out repairs of predictable faults in audio and video replay/recording apparatus
UEENEEH019A	Carry out repairs of predictable faults in television receivers
UEENEEH021A	Find and repair faults in high volume office equipment
UEENEEH071A	Find and repair faults in television receivers
UEENEEH073A	Find and repair faults in professional audio reproduction components
UEENEEH074A	Find and repair faults in audio/video recording equipment
UEENEEI006A	Solve problems in process controllers, transmitters and converters
UEENEEI009A	Set up process measuring and control instruments
UEENEEJ010A	Select refrigerant pipe/tube, accessories and associated controls
UEENEEJ053A	Find and rectify faults in appliance motors and associated controls
UEENEEK017A	Maintain and repair facilities associated with remote area essential services operation
UEENEEK018A	Maintain operation of remote area water facilities
UEENEEK020A	Maintain operation of remote area power plant

## Strand 5

### Schedule 3 – Strand 5 Electives

- UEENEEH051A Install large wired and wireless security systems
- UEENEEH069A Solve problems in electronic circuits

## Strand 4

### Schedule 3 – Strand 4 Electives

- UEENEEG016A Diagnose and rectify faults in lifts systems
- UEENEEG026A Install and maintain field power and distribution systems with a LV demand up to 200 A per phase
- UEENEEH012A Troubleshoot digital subsystems
- UEENEEH013A Troubleshoot amplifiers
- UEENEEH014A Troubleshoot frequency dependent circuits
- UEENEEH020A Find and repair faults in gaming and games equipment
- UEENEEH072A Find and repair faults in communication systems
- UEENEEI013A Select equipment for process control systems
- UEENEEJ057A Service electric heating appliances
- UEENEEK019A Maintain operation of remote area waste water facilities
- UEENEEK023A Carry out basic repairs to renewable energy apparatus by replacement of components
- UEENEEK025A Solve basic problems in photovoltaic energy apparatus
- UEENEEP001A Disconnect and reconnect fixed wired electrical equipment connected to a low voltage supply

## Strand 3

### Schedule 3 – Strand 3 Electives

- UEENEEA012A Make up and assemble bus bars
- UEENEEA013A Assemble and wire control panels
- UEENEEED007A Develop, enter and verify programs for programmable logic controllers using ladder instruction set
- UEENEEED031A Develop and validate basic integrated systems
- UEENEEF008A Select and arrange equipment for wireless networks
- UEENEEF009A Install and connect voice and data communications equipment
- UEENEEF011A Test, report and rectify faults in voice and data installations
- UEENEEG010A Find and repair faults in d.c. electrical apparatus and circuits
- UEENEEG013A Install and maintain emergency systems.
- UEENEEG018A Maintain operation of electrical mining equipment
- UEENEEG019A Maintain the operation of electrical marine equipment
- UEENEEG020A Select and arrange equipment for special electrical installations
- UEENEEG029A Overhaul and repair switchgear / controlgear
- UEENEEG055A Rewind three phase induction machines rated for high voltage to 3.3 kV
- UEENEEG056A Rewind three phase induction machines rated for high voltage above 3.3 kV
- UEENEEG058A Conduct electrical tests on high voltage electrical machines
- UEENEEG064A Repair mechanical components of electrical machines

**Schedule 3 – Strand 3 Electives**

UEENEEH015A	Develop software solutions in microcontroller based systems
UEENEEH022A	Find and repair faults in remote control apparatus
UEENEEH027A	Commission commercial radio frequency (RF) transmission and reception systems
UEENEEH054A	Program and commission commercial security alarm systems
UEENEEH055A	Program and commission commercial security access control systems
UEENEEH056A	Program and commission commercial security closed circuit television (CCTV) systems
UEENEEI014A	Find and rectify faults in process control systems
UEENEEJ005A	Position, assemble and start up split air conditioning systems
UEENEEJ051A	Service small appliances and power tools
UEENEEJ054A	Find and rectify faults in appliance control devices and systems
UEENEEJ055A	Service refrigerated appliances
UEENEEM004A	Install explosion-protected equipment and wiring systems
UEENEEM006A	Maintain equipment in hazardous areas
UEENEEM007A	Overhaul and repair explosion-protected equipment
UEENEEP004A	Disconnect and reconnect explosion-protected electrical equipment connected to low voltage supply
UEENEEP005A	Disconnect and reconnect 3.3 kV electric propulsion components of self-propelled earth moving vehicles

**Strand 2****Schedule 3 – Strand 2 Electives**

UEENEEA003A	Set up and check electronic component placement machines
UEENEEA004A	Rework electronic sub assemblies
UEENEEA006A	Apply lead-free soldering techniques
UEENEED004A	Use engineering applications software
UEENEED029A	Develop basic web pages for engineering applications
UEENEED030A	Select, install, configure and test multimedia devices
UEENEED043A	Install and configure a computer operating system and software
UEENEED046A	Set up and configure basic local area network
UEENEED053A	Set up and test biometric devices
UEENEEE019A	Solve problems in multiple path a.c. circuits
UEENEEE021A	Plan an integrated cabling system
UEENEEF003A	Install and maintain cabling for telecommunication services in lifts
UEENEEF004A	Install and modify performance data communication structured cabling
UEENEEF005A	Install and modify performance data communication optical fibre cabling
UEENEEF007A	Set up wireless capabilities of communications and data storage devices
UEENEEF012A	Install aerial communication cables
UEENEEF013A	Install below ground communication cables
UEENEEF014A	Set up and configure basic data communications systems
UEENEEF016A	Set up and configure basic data communications systems

### Schedule 3 – Strand 2 Electives

UEENEEG017A	Install electrical power and control equipment for rail network signalling
UEENEEG021A	Verify compliance and functionality of special electrical installations
UEENEEG025A	Plan electrical installations with a LV demand up to 400A per phase
UEENEEG028A	Plan switchboard and control panel layouts
UEENEEG034A	Perform high voltage field switching to a given schedule
UEENEEG057A	Conduct electrical tests on low voltage electrical machines
UEENEEG059A	Conduct mechanical tests of electrical machines
UEENEEG062A	Set up and place electrical apparatus and associated circuits into service
UEENEEG065A	Maintain and service traction lifts
UEENEEG066A	Installation and maintenance of escalators, moving walks and tread ways
UEENEEG067A	Align and Install Lift Equipment
UEENEEH002A	Carry out basic repairs to electronic apparatus by replacement of components
UEENEEH005A	Verify compliance and functionality of custom electronic installations
UEENEEH007A	Carry out repairs of predictable faults in general electronic apparatus
UEENEEH011A	Troubleshoot d.c. power supplies with single phase input
UEENEEH016A	Find and repair faults in the microwave amplifier sections of electronic apparatus
UEENEEH018A	Find and repair faults in electronic apparatus
UEENEEH023A	Find and repair faults in microwave heating apparatus
UEENEEH024A	Carry out repairs of predictable faults in audio components
UEENEEH038A	Find and repair faults in complex power supplies
UEENEEH039A	Troubleshoot basic amplifiers
UEENEEH042A	Troubleshoot oscillators
UEENEEH046A	Solve fundamental problems in electronic communications systems
UEENEEH052A	Enter instructions and test basic wired and wireless security systems
UEENEEH063A	Enter and verify programs in preparation for commissioning fire protection systems
UEENEEH064A	Commission commercial fire protection systems
UEENEEH065A	Find and repair faults in fire protection systems
UEENEEH066A	Fault find Microcontroller based hardware
UEENEEH070A	Terminate and connect components, conductors, wiring and cables for electronic circuits
UEENEEH087A	Solve problems in musical equipment circuits
UEENEEI001A	Install and set up transducers and sensing devices
UEENEEI002A	Solve problems in pressure measurement systems
UEENEEI003A	Solve problems in density/level measurement systems
UEENEEI004A	Solve problems in flow measurement systems
UEENEEI005A	Solve problems in temperature measurement systems
UEENEEI007A	Install process instrumentation and control cabling and tubing

**Schedule 3 – Strand 2 Electives**

UEENEEI008A	Install process control apparatus and associated equipment
UEENEEI010A	Set up and adjust process control loops
UEENEEI011A	Find and rectify faults in process control valve and associated equipment
UEENEEI012A	Verify compliance and functionality of process control installations
UEENEEI017A	Calibrate and test measuring instruments
UEENEEJ002A	Prepare refrigeration tubing and fittings
UEENEEJ003A	Determine the basic operating conditions of vapour compression systems
UEENEEJ004A	Determine the basic operating conditions of air conditioning systems
UEENEEJ014A	Solve problems in hydronic systems
UEENEEJ015A	Solve problems in beverage dispensers
UEENEEJ016A	Solve problems in transport refrigeration systems
UEENEEJ018A	Solve problems in post mix refrigeration systems
UEENEEJ020A	Solve problems in industrial refrigeration systems
UEENEEJ056A	Service clothes washers and dryers
UEENEEJ058A	Service dish washing machines
UEENEEJ059A	Service gas appliances
UEENEEJ060A	Service room air conditioners
UEENEEJ061A	Verify compliance and functionality of appliances
UEENEEJ073A	Service microwave ovens
UEENEEK007A	Conduct audits in the demand side use of remote area power supplies
UEENEEK008A	Plan periodic maintenance schedules of remote area power supplies
UEENEEK026A	Install and set up grid connected photovoltaic power systems
UEENEEM009A	Test installations in hazardous areas
UEPOPS234A	Perform Routine Oxyacetylene (Fuel Gas) Welding
UEPOPS235A	Perform Routine Manual Arc Welding
UEPOPS236A	Perform Manual Heating, Thermal Cutting and Gouging
ICTTC056	Install telecomm network equipment.
UETTDRIS04A	Perform high voltage field switching operation to a given schedule

**Strand 1****Schedule 3 – Strand 1 Electives**

UEENEEA002A	Select electronic components
UEENEEA005A	Conduct functional and quality tests on assembled electronic apparatus
UEENEEE005A	Fix and secure equipment
UEENEEF001A	Lay and connect cabling for direct access to telecommunication services
UEENEEJ017A	Solve problems in ultra-low temperature refrigeration systems
UEENEEJ019A	Solve problems in ice making systems
UEENEEJ052A	Carry out repairs to appliance refrigeration systems
UEENEEJ066A	Solve problems in diary refrigeration systems
UEENEEJ067A	Solve problems in central air conditioning systems
UEENEEJ068A	Maintain microbial control of air and water systems

### **Schedule 3 – Strand 1 Electives**

UEENEEJ071A	Solve problems in refrigerated beverage vending cabinets
UEENEEK009A	Attend to breakdowns in remote area power supplies
UEENEEK024A	Assemble and set up photovoltaic apparatus in domestic dwellings
UEENEEK037A	Install and set up micro-hydro systems
UEENEEK043A	Install small wind energy conversion systems for stand-alone applications
UEENEEM002A	Attend to breakdowns in hazardous areas
UEENEEM003A	Use and maintain the integrity of portable gas detection devices
UEENEEM005A	Install and maintain integrity of fixed gas detection equipment
UEENEEM010A	Conduct close inspection of existing hazardous areas installations
UEENEEN002A	Assemble and wire internal electrical signalling equipment
UEENEEN003A	Install and maintain track circuit leads and bonds
UEENEEN004A	Perform cable tests
UEENEEN005A	Install and maintain signalling power supplies
UEENEEN008A	Maintain on-site power operated point-activating devices
UEENEEN009A	Maintain track circuits equipment
UEENEEN011A	Install and maintain power operated signalling equipment
UEENEEN007A	Locate and rectify faults in electrical low voltage equipment following prescribed procedures