Australian Government

UEE62211 Advanced Diploma of Electrical - Engineering

Release: 4

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

UEE62211 Advanced Diploma of Electrical - Engineering

Modification History

Release	Action	Core/Elective	Details	Points
3	Add	Group B	UETTDRIS44A Perform HV field switching operation to a given schedule	60
3	Add	Group D	UETTDRIS69A Diagnose and rectify faults in energy supply apparatus	60
3	Edit		Edit Name to reflect correct Unit title UEENEED104A Use engineering applications software on personal computers	40
3	Edit		Edit Name to Reflect correct Unit Title UEENEEI124A Fault find and repair analogue circuits and components in electronic control systems	
3	Edit		Edit Name to reflect correct Unit title UEENEEE117A Implement and monitor energy sector OHS policies and procedures	
3	Edit		Edit Name to reflect correct Unit title UEENEEE124A Compile and produce an energy sector detailed report	
3	Edit		Edit Name to reflect correct Unit title UEENEEK132A Develop strategies to address environmental and sustainability issues in the energy sector	
3	Edit		Move unit from Elective Group C to Group B UETTDRIS67A Solve problems in energy supply network equipment	
3	Edit		Move unit from Elective Group C to Group B UETTDRIS68A Solve problems in energy supply network protection equipment and systems	

4	Edit	Group B	Edit Name to reflect correct Unit title	40

E-OZ Training Standards

			UEENEEI102A Solve problems in pressure measurement components and systems	
4	Edit	Group B	Edit Name to reflect correct Unit title UEENEEI103A Solve problems in density_level measurement components and systems	40
4	Edit	Group B	Edit Name to reflect correct Unit title UEENEEI104A Solve problems in flow measurement components and systems	40
4	Edit	Group B	Edit Name to reflect correct Unit title UEENEEI105A Solve problems in temperature measurement components and systems	40
4	Edit	Group C	Edit Name to reflect correct Unit title UEENEEI151A Develop, enter and verify word and analogue control programs for programmable logic controllers.	60

Description

Scope

This qualification provides competencies to design and validate/evaluate electrical equipment and systems, manage risk, estimate and manage projects and provide technical advice/sales.
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 engineering.
The core competencies of this qualification meet the prescribed requirements for Engineering Associate membership of Engineers Australia and ERAC requirements for an 'Electrician's licence'.
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, defined in the Core Competency Standard Units table below and
- A combination of Elective competency standard units to achieve a total weighting of 480 points in accordance with the Elective Competency Standard Units table below.

Note: UEENEEG105A - Those holding an 'Unrestricted Electricians Licence or equivalent issued in an Australian State or Territory 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
UEENEED104A	Use engineering applications software on personal computers	40
UEENEEE006B	Apply methods to maintain currency of industry developments	20
UEENEEE011C	Manage risk in electrotechnology activities	60
UEENEEE015B	Develop design briefs for electrotechnology projects	40
UEENEEE071B	Write specifications for electrical engineering projects	40
UEENEEE080A	Apply industry and community standards to engineering activities	20
UEENEEE081A	Apply material science to solving electrotechnology engineering problems	60
UEENEEE082A	Apply physics to solving electrotechnology engineering problems	60
UEENEEE083A	Establish and follow a competency development plan in an electrotechnology engineering discipline	120
UEENEEE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace	20
UEENEEE102A	Fabricate, assemble and dismantle utilities industry components	40
UEENEEE104A	Solve problems in d.c. circuits	80

UEENEEE105A	Fix and secure electrotechnology equipment	20
UEENEEE107A	Use drawings, diagrams, schedules, standards, codes and specifications	40
UEENEEE117A	Implement and monitor energy sector OHS policies and procedures	20
UEENEEE124A	Compile and produce an energy sector detailed report	60
UEENEEE125A	Provide engineering solutions for problems in complex multiple path circuits	60
UEENEEE126A	Provide solutions to basic engineering computational problems	60
UEENEEE137A	Document and apply measures to control OHS risks associated with electrotechnology work	20
UEENEEG006A	Solve problems in single and three phase low voltage machines	80
UEENEEG033A	Solve problems in single and three phase low voltage electrical apparatus and circuits	60
UEENEEG063A	Arrange circuits, control and protection for general electrical installations	40
UEENEEG101A	Solve problems in electromagnetic devices and related circuits	60
UEENEEG102A	Solve problems in low voltage a.c. circuits	80
UEENEEG103A	Install low voltage wiring and accessories	20
UEENEEG104A	Install appliances, switchgear and associated accessories for low voltage electrical installations	20
UEENEEG105A	Verify compliance and functionality of low voltage general electrical installations	40
UEENEEG106A	Terminate cables, cords and accessories for low voltage circuits	40
UEENEEG107A	Select wiring systems and cables for low voltage general electrical installations	60
UEENEEG108A	Trouble-shoot and repair faults in low voltage electrical apparatus and circuits	40

UEENEEG109A	Develop and connect electrical control circuits	80
UEENEEG149A	Provide engineering solutions to problems in complex polyphase power circuits	60
UEENEEG169A	Manage large electrical projects	40
UEENEEG170A	Plan large electrical projects	60
UEENEEK132A	Develop strategies to address environmental and sustainability issues in the energy sector	20
Total points in core		**1680**

Elective Competency Standard Units

Complete Elective units to achieve a total of weighting of 480 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 assigned a weighting by the relevant EE-Oz Industry Technical Advisory Committee, their weighting will be 10 points.	0	220
B	**Qualification Elective Units**	0	60
C	**Qualification Elective Units**	0	100
D	**Qualification Elective Units**	0	60
E	**Qualification Elective Units** You may select the majority of your elective units from this Group	260	480

Group A – Imported and Common Electives Units You may complete units to a maximum weighting of 220		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
	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 by the relevant EE-Oz Industry Technical Advisory Committee, their weighting will be 10 points. Note: For further information see Application of the NQC Flexibility Formula, UEE11 Electrotechnology Training Package, Version 1, Volume 1 Qualification Framework	Up to 220 points

Group B – Qualification Elective Units You may complete units to a maximum weighting of 60		Weighting Points
UEENEEA110A	Assemble, mount and connect control gear and switchgear	40
UEENEEA112A	Fabricate and assemble bus bars	40
UEENEEA113A	Mount and wire control panel equipment	40
UEENEEE121A	Plan an residential integrated cabling system	40
UEENEEF102A	Install and maintain cabling for multiple access to telecommunication services	120
UEENEEF104A	Install and modify performance data communication copper cabling	40
UEENEEG110A	Diagnose and rectify faults in d.c. electrical apparatus and circuits	60
UEENEEG111A	Carry out repairs to electrical apparatus	40
UEENEEG113A	Install and maintain emergency and safety systems.	60
UEENEEG116A	Diagnose and rectify faults in lifts/escalator systems	80
UEENEEG118A	Maintain operation of electrical mining equipment and systems	60
UEENEEG119A	Maintain the operation of electrical marine equipment and systems	60
UEENEEG120A	Select and arrange circuits and equipment for special electrical installations	60
UEENEEG126A	Install and maintain LV field power and distribution systems with a demand up to 200 A per phase	40
UEENEEG129A	Overhaul and repair switchgear and controlgear	60
UEENEEG150A	Wind electrical coils	40
UEENEEG151A	Place and connect electrical coils	40
UEENEEG152A	Rewind single phase machines	40
UEENEEG153A	Rewind LV three phase induction machines rated for low	60

	voltage	
UEENEEG154A	Rewind LV direct current machines	60
UEENEEG157A	Conduct electrical tests on LV electrical machines	40
UEENEEG159A	Conduct mechanical tests of LV electrical machines	40
UEENEEG164A	Repair mechanical and electrical components of electrical machines	40
UEENEEG165A	Maintain and service electrical traction lifts	40
UEENEEG166A	Installation and maintenance of escalators, tread ways and moving walks	40
UEENEEG167A	Align and install lift components and equipment	20
UEENEEG171A	Install, set up and commission interval metering	20
UEENEEG181A	Provide advice on effective and energy efficient lighting products	20
UEENEEG182A	Supply effective and efficient lighting products for domestic and small commercial applications	40
UEENEEG183A	Provide advice on the application of energy efficient lighting for ambient and aesthetic effect	20
UEENEEG189A	Install and maintain emergency lighting systems	40
UEENEEH102A	Repair basic electronic apparatus faults by replacement of components	40
UEENEEH111A	Troubleshoot single phase input d.c. power supplies	40
UEENEEH150A	Assemble and set up basic wired and wireless security systems	80
UEENEEI101A	Use instrumentation drawings, specifications, standards and equipment manuals	40
UEENEEI102A	Solve problems in pressure measurement components and systems	40
UEENEEI103A	Solve problems in density_level measurement components and systems	40
UEENEEI104A	Solve problems in flow measurement components and	40

	systems	
UEENEEI105A	Solve problems in temperature measurement components and systems	40
UEENEEI116A	Enter and verify operating instructions in microprocessor equipped devices	20
UEENEEI138A	Provide solutions to extra low voltage (ELV) electro-pneumatic control systems and drives	60
UEENEEI140A	Plan the electrical installation of integrated systems	20
UEENEEI141A	Develop electrical integrated systems	20
UEENEEI150A	Develop, enter and verify discrete control programs for programmable controllers	60
UEENEEJ102A	Prepare and connect refrigerant tubing and fittings	30
UEENEEJ103A	Establish the basic operating conditions of vapour compression systems	60
UEENEEJ104A	Establish the basic operating conditions of air conditioning systems	20
UEENEEK125A	Solve basic problems in photovoltaic energy apparatus and systems	20
UEENEEK142A	Apply environmentally and sustainable energy procedures in the energy sector	20
UEENEEK148A	Install, configure and commission photovoltaic grid connected power systems	40
UEENEEM019A	Attend to breakdowns in hazardous areas — coal mining	20
UEENEEM020A	Attend to breakdowns in hazardous areas — gas atmospheres	20
UEENEEM021A	Attend to breakdowns in hazardous areas — dust atmospheres	20
UEENEEM022A	Attend to breakdowns in hazardous areas — pressurisation	20
UEENEEM023A	Install explosion-protected equipment and wiring systems — coal mining	60

UEENEEM024A	Install explosion-protected equipment and wiring systems — gas atmospheres	60
UEENEEM025A	Install explosion-protected equipment and wiring systems — dust atmospheres	60
UEENEEM026A	Install explosion-protected equipment and wiring systems — pressurisation	60
UEENEEM027A	Maintain equipment in hazardous areas — coal mining	60
UEENEEM028A	Maintain equipment in hazardous areas — gas atmospheres	60
UEENEEM029A	Maintain equipment in hazardous areas — dust atmospheres	60
UEENEEM030A	Maintain equipment in hazardous areas — pressurisation	60
UEENEEM038A	Conduct testing of hazardous areas installations — coal mining	40
UEENEEM080A	Report on the integrity of explosion-protected equipment in hazardous area	20
UETTDRIS67A	Solve problems in energy supply network equipment	80
UETTDRIS68A	Solve problems in energy supply network protection equipment and systems	40
UETTDRIS44A	Perform HV field switching operation to a given schedule	40

Group C – Qualification Elective Units You may complete units to a maximum weighting of 100		Weighting Points
UEENEEC005B	Estimate electrotechnology projects	40
UEENEEE110A	Develop and implement energy sector maintenance programs	60
UEENEEG076A	Install and replace low voltage current transformer metering	20
UEENEEG121A	Verify compliance and functionality of special LV	40

	electrical installations	
UEENEEG122A	Conduct compliance inspection of single phase LV electrical installations	60
UEENEEG123A	Conduct compliance inspection of LV electrical installations with demand exceeding 100 A per phase	40
UEENEEG124A	Conduct compliance inspection of special LV electrical installations	60
UEENEEG125A	Plan LV electrical installations with a demand up to 400A per phase	40
UEENEEG128A	Plan low voltage switchboard and control panel layouts	40
UEENEEG132A	Carry out and report electrical field testing findings	60
UEENEEG155A	Rewind three phase induction machines rated for HV to 3.3 kV	60
UEENEEG156A	Rewind three phase induction machines rated for HV above 3.3 kV	60
UEENEEG158A	Conduct electrical tests on HV electrical machines	60
UEENEEG162A	Set up and place LV electrical apparatus and associated circuits into service	40
UEENEEG168A	Diagnose and rectify faults in complex lifts equipment and systems	40
UEENEEG172A	Investigate and produce reports on electrical incidents	60
UEENEEG175A	Develop compliance policies and plans to conduct a electrical contracting business	80
UEENEEG177A	Select power factor correction equipment	40
UEENEEG179A	Develop detailed electrical drawings	60
UEENEEG184A	Provide photometric data for illumination system design	60
UEENEEG185A	Select effective and efficient light sources and luminaires for given locations and designs	60
UEENEEG186A	Design effective and efficient lighting for residential and commercial buildings	20

UEENEEG188A	Prepare quotations for the supply of effective and efficient lighting products for lighting projects	20
UEENEEI119A	Set up transducers and field control devices	60
UEENEEI120A	Provide solutions to problems in industrial control systems	60
UEENEEI124A	Fault find and repair analogue circuits and components in electronic control systems	60
UEENEEI125A	Provide solutions to fluid circuit operations	60
UEENEEI126A	Provide solutions to pneumatic/hydraulic system operations	80
UEENEEI139A	Diagnose and rectify faults in digital controls systems	60
UEENEEI142A	Develop an electrical integrated system interface for access through a touch screen	20
UEENEEI143A	Develop access control of electrical integrated systems using logic-based programming tools	20
UEENEEI144A	Develop interfaces for multiple access methods to monitor, schedule and control an electrical integrated system	20
UEENEEI148A	Provide solutions to single phase electronic power control problems	60
UEENEEI149A	Provide solutions to polyphase electronic power control problems	60
UEENEEI151A	Develop, enter and verify word and analogue control programs for programmable logic controllers.	60
UEENEEI152A	Develop, enter and verify programs in Supervisory Control and Data Acquisition systems	60
UEENEEI155A	Develop structured programs to control external devices	40
UEENEEK135A	Design photovoltaic grid connected power supply systems	60
UEENEEK145A	Implement and monitor energy sector environmental and sustainable energy policies and procedures	20
UEENEEK152A	Develop strategies to address sustainability issues for	20

	electrical installations	
UEENEEK153A	Assessment of energy loads and uses for energy efficiency in residential, office and retail dwellings	40
UEENEEK154A	Assessment of energy loads and uses for energy efficiency in commercial facilities	40
UEENEEK155A	Assessment of energy loads and uses for energy efficiency in large industrial properties and enterprise	40
UEENEEM039A	Conduct testing of hazardous area installations — gas atmospheres	40
UEENEEM042A	Conduct visual inspection of hazardous areas installations	40
UEENEEM044A	Conduct detailed inspection of hazardous areas installations — gas atmospheres	40
UEENEEM047A	Develop and manage maintenance programs for hazardous areas electrical equipment — coal mining	20
UEENEEM078A	Manage compliance of hazardous areas	20

Group D – Qualification Elective Units You may complete units to a maximum weighting of 60		Weighting Points
UEENEEC006B	Prepare tender submissions for electrotechnology projects	60
UEENEED147A	Develop energy sector directory services	80
UEENEEG127A	Design electrical installations with a low voltage demand greater than 400 A per phase	40
UEENEEG131A	Evaluate performance of low voltage electrical apparatus	40
UEENEEG160A	Evaluate performance of LV electrical machines	40
UEENEEI127A	Analyse complex electronic circuits controlling fluids	80
UEENEEI157A	Configure and maintain industrial control system networks	60
UEENEEK151A	Develop effective engineering strategies for energy reduction in buildings	60
UEENEEM036A	Conduct a conformity assessment of explosion-protected	40

	equipment — gas atmospheres	
UEENEEM054A	Plan electrical installations for hazardous areas — gas atmospheres	20
UEENEEM065A	Conduct audit of hazardous areas installations — gas atmospheres	60
UETTDRIS70A	Diagnose and rectify faults in electrical energy distribution systems	60
UETTDRIS71A	Diagnose and rectify faults in electrical energy supply transmission systems	60
UETTDRIS72A	Diagnose and rectify faults in distributed Generation systems	60
UETTDRIS69A	Diagnose and rectify faults in energy supply apparatus	60

Group E – Qualification Elective Units You must complete units to a minimum weighting of 260 You may select all your elective units from this Group		Weighting Points
UEENEEC007B	Manage contract variations	40
UEENEED150A	Develop industrial control programs for microcomputer equipped devices	60
UEENEED151A	Provide programming solution for computer systems engineering problems	60
UEENEED152A	Design embedded controller control systems	80
UEENEEE127A	Use advanced computational processes to provide solutions to energy sector engineering problems	80
UEENEED149A	Develop energy sector computer network applications infrastructure	80
UEENEEG130A	Design switchboards rated for high fault levels (greater than 400 A)	60
UEENEEG145A	Develop engineering solutions for induction machine and control problems	60
UEENEEG161A	Design and develop modifications to LV electrical machines	60

UEENEEI145A	Diagnose and rectify faults in a.c. motor drive systems	60
UEENEEI146A	Diagnose and rectify faults in d.c. motor drive systems	60
UEENEEI147A	Diagnose and rectify faults in servo drive systems	60
UEENEEI153A	Design and configure Human-Machine Interface (HMI) networks	60
UEENEEI154A	Design and use advanced programming tools PC networks and HMI interfacing	120
UEENEEI156A	Develop and test code for microcontroller devices	60
UEENEEM052A	Classify hazardous areas — gas atmospheres	40
UEENEEM057A	Design explosion-protected electrical systems and installations — gas atmospheres	20
UEENEEM068A	Assess the fitness-for-purpose of hazardous areas explosion-protected equipment — gas atmospheres	60
UETTDRIS73A	Develop engineering solutions for energy supply power transformer problems	60
UETTDRIS74A	Develop engineering solutions for energy supply system protection problems	60

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