



**Australian Government**

# **UEE62111 Advanced Diploma of Engineering Technology - Electrical**

**Release: 3**

# UEE62111 Advanced Diploma of Engineering Technology - Electrical

## Modification History

Release	Action	Core/Elective	Details	Points
2	Edit		Edit Name to reflect correct Unit title UEENEEED104A Use engineering applications software on personal computers	
2	Edit		Edit Name to reflect correct Unit title UEENEEI151A Develop, enter and verify word and analogue control programs for programmable logic controllers.	
2	Edit		Edit Name to reflect correct Unit title UEENEEI154A Design and use advanced programming tools PC networks and HMI Interfacing	
2	Edit		Edit Name to reflect correct Unit title UEENEEG145A Develop engineering solutions for induction machine and control problems	
2	Edit		Edit Name to reflect correct Unit title UEENEEE117A Implement and monitor energy sector OHS policies and procedures	
2	Edit		Edit Name to reflect correct Unit title UEENEEE124A Compile and produce an energy sector detailed report	
2	Edit		Edit Name to reflect correct Unit title UEENEEK132A Develop strategies to address environmental and sustainability issues in the energy sector	

3	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
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## **Description**

### **Scope**

This qualification provides enabling competencies to design and validate/evaluate electrical equipment and systems and provide technical advice/sales.

## **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 720 points in accordance with the Elective Competency Standard Units table below.

<b>Core Competency Standard Units</b>		<b>Weighting Points</b>
All Core competency standard units to be achieved		
UEENEED104A	Use engineering applications software on personal computers	40
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
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 solutions to complex multiple path circuits problems	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
UEENEEG106A	Terminate cables, cords and accessories for low voltage circuits	40
UEENEEG107A	Select wiring systems and cables for low voltage general electrical installations	60
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
<b>Total points in core</b>		<b>1440</b>

### Elective Competency Standard Units

Complete Elective units to achieve a total of weighting of 720 points from the following groups:

Group		Minimum points	Maximum points
<b>A</b>	<b>Imported and Common Elective Units</b> 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	360
<b>B</b>	<b>Qualification Elective Units</b>	0	160
<b>C</b>	<b>Qualification Elective Units</b>	0	220
<b>D</b>	<b>Qualification Elective Units</b>	0	220
<b>E</b>	<b>Qualification Elective Units</b> You may select all your elective units from this Group	200	720

Group A – Imported and Common Elective Units		Weighting Points
You may complete units to a maximum weighting of 360		
BSBINM501A	Manage an information or knowledge management system	50
BSBINN502A	Build and sustain an innovative work environment	50
BSBMGT502B	Manage people performance	70
BSBMGT516C	Facilitate continuous improvement	60
BSBWOR502B	Ensure team effectiveness	60
UEENEEC001B	Maintain documentation	20
UEENEEC002B	Source and purchase material/parts for installation or service jobs	20
UEENEEC003B	Provide quotations for installation or service jobs	20
UEENEEC010B	Deliver a service to customers	20
UEENEED101A	Use basic computer applications relevant to a workplace	20

UEE0000020B	Provide basic instruction in the use of electrotechnology apparatus	20
	<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 by the relevant EE-Oz Industry Technical Advisory Committee, their weighting will be 10 points.</p> <p>Note: For further information see Application of the NQC Flexibility Formula, UEE11 Electrotechnology Training Package, Version 1, Volume 1 Qualification Framework</p>	Up to 360 points

<b>Group B – Qualification Elective Units</b>		<b>Weighting Points</b>
You may complete units to a maximum weighting of 160		
UEENEEE105A	Fix and secure electrotechnology equipment	20
UEENEEE121A	Plan an residential integrated cabling system	40
UEENEEE190A	Prepare engineering drawings using manual drafting and CAD for electrotechnology/utilities applications	60
UEENEEE191A	Prepare electrotechnology/utilities drawings using manual drafting and CAD equipment and software	60
UEENEEF102A	Install and maintain cabling for multiple access to telecommunication services	120
UEENEEF104A	Install and modify performance data communication copper cabling	40
UEENEEG111A	Carry out repairs to electrical apparatus	40
UEENEEG120A	Select and arrange circuits and equipment for special electrical installations	60
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
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
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
UEENEEK125A	Solve basic problems in photovoltaic energy apparatus and systems	20

<b>Group C – Qualification Elective Units</b>		<b>Weighting Points</b>
You may complete units to a maximum weighting of 220		
UEENEEC005B	Estimate electrotechnology projects	40
UEENEEG125A	Plan LV electrical installations with a demand up to 400A per phase	40
UEENEEG128A	Plan layouts for electrical switchboards and control panels	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
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
UEENEEI151A	Develop, enter and verify word and analogue control	60

	programs for programmable logic controllers.	
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

<b>Group D – Qualification Elective Units</b>		<b>Weighting Points</b>
You may complete units to a maximum weighting of 220		
UEENEEC006B	Prepare tender submissions for electrotechnology projects	60
UEENEEE110A	Develop and implement energy sector maintenance programs	60
UEENEEI147A	Develop energy sector directory services	80
UEENEEG127A	Design LV electrical installations with a demand greater than 400 A per phase	40
UEENEEG131A	Evaluate performance of LV electrical apparatus	40
UEENEEG180A	Develop detailed and complex drawings for electrical systems using CAD systems	60
UEENEEG187A	Design effective and efficient lighting for public, open and sports areas	20
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
UEENEEI156A	Develop and test code for microcontroller devices	60
UEENEEI157A	Configure and maintain industrial control system networks	60
UEENEEK129A	Design renewable energy (RE) heating systems	120
UEENEEK131A	Design wind energy conversion systems (WECS) rated to 10 kW.	60
UEENEEK138A	Design micro-hydro power systems	60

<b>Group E – Qualification Elective Units</b>		<b>Weighting Points</b>
You must complete units to a minimum weighting of 200 You may select all your elective units from this Group		
UEENEEC007B	Manage contract variations	40
UEENEEE078B	Contribute to risk management in electrotechnology systems	20
UEENEEE127A	Use advanced computational processes to provide solutions to engineering problems	80
UEENEEE128A	Develop engineering solutions to photonic problems	80
UEENEEED149A	Develop energy sector computer network applications infrastructure	80
UEENEEE160A	Provide engineering solutions for uses of materials and thermodynamic effects	80
UEENEEE161A	Analyse static and dynamic parameters of electrotechnology/utilities equipment	80
UEENEEE162A	Select drive components for equipment design	80
UEENEEE163A	Analyse materials for suitability in electrotechnology/utilities equipment	80
UEENEEE164A	Design electrical machine drives and production layout plans	80
UEENEED130A	Design electrical switchboards rated for high fault levels	60
UEENEED143A	Develop engineering solutions for synchronous machine problems	60
UEENEED144A	Develop engineering solutions for direct current machine problems	60
UEENEED145A	Develop engineering solutions for induction machine and control problems	60
UEENEED160A	Evaluate performance of LV electrical machines	40
UEENEED161A	Design and develop modifications for electrical machines	60
UEENEED147A	Assess compliance of electronic apparatus	60

UEENEEH184A	Modify DSP based sub-systems	80
UEENEEH185A	Design a signal-conditioning subsystem	80
UEENEEH188A	Design and develop electronics/computer systems projects	40
UEENEEI123A	Design electronic control and instrumentation systems	60
UEENEEI128A	Set up controls on complex fluid systems	80
UEENEEI129A	Set up electronically controlled mechanically operated complex systems	80
UEENEEI130A	Set up electronically controlled robotically operated complex systems	80
UEENEEI153A	Design and configure Human-Machine Interface (HMI) networks	60
UEENEEI154A	Design and use advanced programming tools PC networks and HMI Interfacing	120
UEENEEK133A	Design hybrid renewable power systems	80
UEENEEK139A	Design stand-alone renewable energy power systems	40
UEENEEK140A	Develop engineering solutions to renewable energy problems	60
UEENEEK146A	Design energy management controls systems for electrical installations in buildings	80
UEENEEK151A	Develop engineering strategies for energy reduction in buildings	60
UEENEEM052A	Classify hazardous areas — gas atmospheres	40
UEENEEM053A	Classify hazardous areas — dust atmospheres	40
UEENEEM057A	Design explosion-protected electrical systems and installations — gas atmospheres	20
UEENEEM058A	Design explosion-protected electrical systems and installations — dust atmospheres	20
UEENEEM059A	Design explosion-protected electrical systems and installations — pressurisation	20
UEENEEM068A	Assess the fitness-for-purpose of hazardous areas	60

	explosion-protected equipment — gas atmospheres	
UEENEEM075A	Design explosion-protected electrical systems — Coal mining	20
UEENEEM079A	Design of gas detection systems and installations	20

**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****Custom Content Section**

Not applicable.