



**Australian Government**

# **UEE60911 Advanced Diploma of Renewable Energy Engineering**

**Release: 3**

## UEE60911 Advanced Diploma of Renewable Energy Engineering

### Modification History

Release	Action	Core/Elective	Details	Points
2	Add	Group D	UEENEEE161A Analyse static and dynamic parameters of electrical equipment	80
2	Edit		Edit Name to reflect correct Unit title UEENEEED104A Use engineering applications software on personal computers	40

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 competencies to design and validate/evaluate renewable energy equipment and systems, manage risk, estimate and manage projects 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 340 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 meets the requirements of this unit and its pre-requisite requirements.

Core Competency Standard Units		Weighting Points
All Core competency standard units to be achieved		
UEENEEED104A	Use engineering applications software on personal computers	40
UEENEEEE006B	Apply methods to maintain currency of industry developments	20
UEENEEEE011C	Manage risk in electrotechnology activities	60
UEENEEEE015B	Develop design briefs for electrotechnology projects	40
UEENEEEE074B	Write specifications for renewable energy projects	40
UEENEEEE080A	Apply industry and community standards to engineering activities	20
UEENEEEE081A	Apply material science to solving electrotechnology engineering problems	60
UEENEEEE082A	Apply physics to solving electrotechnology engineering problems	60
UEENEEEE083A	Establish and follow a competency development plan in an electrotechnology engineering discipline	120
UEENEEEE101A	Apply Occupational Health Safety regulations, codes and practices in the workplace	20
UEENEEEE102A	Fabricate, dismantle, assemble of utilities industry components	40
UEENEEEE104A	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 OHS energy sector procedures and policies	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
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
UEENEEK121A	Manage renewable energy (RE) projects	40
UEENEEK122A	Plan renewable energy (RE) projects	60
UEENEEK123A	Carry out basic repairs to renewable energy apparatus	80
UEENEEK128A	Solve problems in stand-alone renewable energy apparatus and systems	60
UEENEEK132A	Develop strategies to address environmental and sustainability issues in the energy sector	20
<b>Total points in core</b>		<b>1820</b>

### Elective Competency Standard Units

Complete Elective units to achieve a total of weighting of 340 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	170
<b>B</b>	<b>Qualification Elective Units</b>	0	60
<b>C</b>	<b>Qualification Elective Units</b>	0	100
<b>D</b>	<b>Qualification Elective Units</b>	0	60
<b>E</b>	<b>Qualification Elective Units</b> You may select all your elective units from this Group	160	340

<b>Group A – Imported and Common Elective Units</b>		<b>Weighting Points</b>
You may complete units to a maximum weighting of 170		
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
	<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 170 points

<b>Group B – Qualification Elective Units</b>		<b>Weighting Points</b>
You may complete units to a maximum weighting of 60		
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
UEENEEG171A	Install, set up and commission interval metering	20
UEENEEH102A	Repair basic electronic apparatus faults by replacement of components	40
UEENEEH111A	Troubleshoot single phase input d.c. power supplies	40
UEENEEI116A	Enter and verify operating instructions in microprocessor equipped devices	20
UEENEEI150A	Develop, enter and verify discrete control programs for programmable controllers	60
UEENEEK124A	Solve basic problems in micro hydro systems	20
UEENEEK125A	Solve basic problems in photovoltaic energy apparatus and systems	20
UEENEEK127A	Diagnose and rectify faults in renewable energy control systems	60
UEENEEK130A	Solve problems in wind energy conversion apparatus and systems	60
UEENEEK134A	Install standalone extra low voltage photovoltaic power systems	60
UEENEEK136A	Install, configure and commission LV micro-hydro systems rated up to 6.4 kW	20
UEENEEK137A	Install and set up micro-hydro power systems	20
UEENEEK143A	Install wind energy conversion systems rated to 10 kW for ELV stand-alone applications	20
UEENEEK144A	Install, configure and commission LV wind energy conversion systems rated to 10 kW	40



UEENEEK148A	Install, configure and commission photovoltaic grid connected power systems	40
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<b>Group C – Qualification Elective Units</b>		<b>Weighting Points</b>
You may complete units to a maximum weighting of 100		
UEENEEC005B	Estimate electrotechnology projects	40
UEENEEE192A	Produce detailed electrotechnology/utilities drawings using computer aided design equipment and software	60
UEENEEG076A	Install and replace low voltage current transformer metering	20
UEENEEG125A	Plan LV electrical installations with a demand up to 400A per phase	40
UEENEEG128A	Plan layouts for electrical switchboards and control panels	40
UEENEEG132A	Carry out and report electrical field testing findings	60
UEENEEG162A	Set up and place LV electrical apparatus and associated circuits into service	40
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
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
UEENEEK135A	Design photovoltaic grid connected power supply systems	60
UEENEEK152A	Develop strategies to address sustainability issues for electrical installations	20
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

<b>Group D – Qualification Elective Units</b>		<b>Weighting Points</b>
You may complete units to a maximum weighting of 60		
UEENEEC006B	Prepare tender submissions for electrotechnology projects	60
UEENEEE110A	Develop and implement energy sector maintenance programs	60
UEENEEG127A	Design LV electrical installations with a demand greater than 400 A per phase	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
UEENEEI156A	Develop and test code for microcontroller devices	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 160 You may select all your elective units from this Group		
UEENEEC007B	Manage contract variations	40
UEENEEE012B	Manage electrotechnology projects	40
UEENEEE013B	Plan electrotechnology projects	60
UEENEEE078B	Contribute to risk management in electrotechnology	20

	systems	
UEENEEE127A	Use advanced computational processes to provide solutions to engineering problems	80
UEENEEE160A	Provide engineering solutions for uses of materials and thermodynamic effects	80
UEENEEE163A	Analyse materials for suitability in electrotechnology/utilities equipment	80
UEENEEG130A	Design electrical switchboards rated for high fault levels	60
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
UEENEEE161A	Analyse static and dynamic parameters of electrical equipment	80

**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.