Australian Government

UEE60611 Advanced Diploma of Industrial Electronics and Control Engineering

Release 4

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

UEE60611 Advanced Diploma of Industrial Electronics and Control Engineering

Modification History

Release	Action	Core/Elective	Details	Points
2	Edit		Edit Name to reflect correct Unit title UEENEED104A Use engineering applications software on personal computers	
2	Edit		Edit Name to Reflect correct Unit Title UEENEEI124A Fault find and repair analogue circuits and components in electronic control systems	
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 B	Edit Name to reflect correct Unit title UEENEEI102A Solve problems in pressure measurement components and systems	40
3	Edit	Group B	Edit Name to reflect correct Unit title UEENEEI103A Solve problems in density_level measurement components and systems	40
3	Edit	Group B	Edit Name to reflect correct Unit title UEENEEI104A Solve problems in flow measurement components and systems	40
3	Edit	Group B	Edit Name to reflect correct Unit title	40

			UEENEEI105A Solve problems in temperature measurement components and systems	
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

4	Edit	Core	Correct title of UEENEEI134A Manage instrumentation and control projects	40
4	Edit	Core	Correct title of UEENEEI135A Plan instrumentation and control projects	60
4	Edit	Elective	Correct title of UEENEEE127A Use advanced computational processes to provide solutions to energy sector engineering problems	80
4	Edit	Elective	Correct title of UEENEEE128A Develop engineering solutions to photonic system problems	80
4	Edit	Elective	Correct title of UEENEEE161A Analyse static and dynamic parameters of electrical equipment	80
4	Edit	Elective	Correct title of UEENEEE162A Select drive components for electrical equipment design	80
4	Edit	Elective	Correct title of UEENEEE163A Analyse materials for suitability in electrical equipment	80
4	Edit	Elective	Correct title of UEENEEE192A Produce detailed electrotechnology /utilities drawings using computer aided design equipment and software	60
4	Edit	Elective	Correct title of UEENEEG110A Find and repair faults in LV d.c. electrical apparatus and circuits	60
4	Edit	Elective	Correct title of UEENEEG111A Carry out basic repairs to electrical components and equipment	40
4	Edit	Elective	Correct title of UEENEEG116A Diagnose and rectify faults in traction lift systems	80
4	Edit	Elective	Correct title of UEENEEG119A Maintain operation of electrical marine equipment and systems	60
4	Edit	Elective	Correct title of UEENEEG131A Evaluate	40

			performance of low voltage electrical apparatus	
4	Edit	Elective	Correct title of UEENEEG132A Carry out low voltage electrical field testing and report findings	60
4	Edit	Elective	Correct title of UEENEEG143A Develop engineering solution for synchronous machine and control problems	60
4	Edit	Elective	Correct title of UEENEEG144A Develop engineering solutions for d.c. machine and control problems	60
4	Edit	Elective	Correct title of UEENEEG145A Develop engineering solutions for induction machine and control problems	60
4	Edit	Elective	Correct title of UEENEEG161A Design and develop modifications to LV electrical machines	60
4	Edit	Elective	Correct title of UEENEEG168A Diagnose and rectify faults in complex lift systems	40
4	Edit	Elective	Correct title of UEENEEG177A Select low voltage power factor correction equipment	40
4	Edit	Elective	Correct title of UEENEEH102A Repairs basic electronic apparatus faults by replacement of components	40
4	Edit	Elective	Correct title of UEENEEH147A Assess electronic apparatus compliance	60
4	Edit	Elective	Correct title of UEENEEH150A Assemble and set up basic security systems	80
4	Edit	Elective	Correct title of UEENEEH184A Modify digital signal processing (DSP) based sub-systems	80
4	Edit	Elective	Correct title of UEENEEH185A Design signal-conditioning subsystems	80
4	Edit	Elective	Correct title of UEENEEH188A Design and develop electronics - computer systems projects	40
4	Edit	Elective	Correct title of UEENEEI101A Use instrumentation drawings, specification, standards and equipment manuals	40

4	Edit	Elective	Correct title of UEENEEI103A Solve problems in density/level measurement components and systems	40
4	Edit	Elective	Correct title of UEENEEI116A Assemble, enter and verify operating instructions in microprocessor equipped devices	20
4	Edit	Elective	Correct title of UEENEEI119A Set up industrial field control devices	60
4	Edit	Elective	Correct title of UEENEEI123A Design electronic control systems	60
4	Edit	Elective	Correct title of UEENEEI126A Provide solutions to pneumatic-hydraulic system operations	60
4	Edit	Elective	Correct title of UEENEEI128A Set up and configure controls on complex fluid systems	80
4	Edit	Elective	Correct title of UEENEEI148A Solve problems in single phase electronic power control circuits	60
4	Edit	Elective	Correct title of UEENEEI149A Solve problems in polyphase electronic power control circuits	60
4	Edit	Elective	Correct title of UEENEEI151A Develop, enter and verify word and analogue control programs for programmable logic controllers.	60
4	Edit	Elective	Correct title of UEENEEI154A Design and use advanced programming tools PC networks and HMI Interfacing	120
4	Edit	Elective	Correct title of UEENEEM039A Conduct testing of hazardous areas installations - gas atmospheres	40
4	Edit	Elective	Correct title of UEENEEM079A Design of gas detection systems	20
4	Edit	Elective	Correct title of UEENEEM080A Report on the integrity of explosion-protected equipment in a hazardous area	20

Description

Scope
This qualification provides competencies to design and validate/evaluate control 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 360 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 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
UEENEEE075B	Write specifications for industrial electronics and control 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
UEENEEI124A	Fault find and repair analogue circuits and components in electronic control systems	60
UEENEEI134A	Manage instrumentation and control projects	40
UEENEEI135A	Plan instrumentation and control projects	60
UEENEEI139A	Diagnose and rectify faults in digital controls systems	60
UEENEEK132A	Develop strategies to address environmental and sustainability issues in the energy sector	20
Total points in core		**1800**

Elective Competency Standard Units

Complete Elective units to achieve a total of weighting of 360 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	180
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 all your elective units from this Group	160	360

Group A – Imported and Common Elective Units You may complete units to a maximum weighting of 180		**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 180 points

Group B – Qualification Elective Units You may complete units to a maximum weighting of 60		**Weighting Points**
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
UEENEEG110A	Find and repair faults in LV d.c. electrical apparatus and circuits	60
UEENEEG111A	Carry out basic repairs to electrical components and equipment	40
UEENEEG116A	Diagnose and rectify faults in traction lift systems	80
UEENEEG118A	Maintain operation of electrical mining equipment and systems	60
UEENEEG119A	Maintain operation of electrical marine equipment and systems	60
UEENEEH102A	Repairs 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 security systems	80
UEENEEI101A	Use instrumentation drawings, specification, 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 systems	40
UEENEEI105A	Solve problems in temperature measurement components and systems	40
UEENEEI116A	Assemble, enter and verify operating instructions in	20

	microprocessor equipped devices	
UEENEEI138A	Provide solutions to extra low voltage (ELV) electro-pneumatic control systems and drives	60
UEENEEI150A	Develop, enter and verify discrete control programs for programmable controllers	60
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
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 a hazardous area	20

Group C – Qualification Elective Units You may complete units to a maximum weighting of 100		**Weighting Points**
UEENEEC005B	Estimate electrotechnology projects	40
UEENEEE192A	Produce detailed electrotechnology /utilities drawings using computer aided design equipment and software	60
UEENEEG132A	Carry out low voltage electrical field testing and	60

	report findings	
UEENEEG162A	Set up and place LV electrical apparatus and associated circuits into service	40
UEENEEG168A	Diagnose and rectify faults in complex lift systems	40
UEENEEG177A	Select low voltage power factor correction equipment	40
UEENEEG179A	Develop detailed electrical drawings	60
UEENEEI119A	Set up industrial field control devices	60
UEENEEI120A	Provide solutions to problems in industrial control systems	60
UEENEEI125A	Provide solutions to fluid circuit operations	60
UEENEEI126A	Provide solutions to pneumatic-hydraulic system operations	80
UEENEEI148A	Solve problems in single phase electronic power control circuits	60
UEENEEI149A	Solve problems in polyphase electronic power control circuits	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
UEENEEM039A	Conduct testing of hazardous areas 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
UEENEEE110A	Develop and implement energy sector maintenance programs	60
UEENEEG131A	Evaluate performance of low voltage electrical apparatus	40
UEENEEG180A	Develop detailed and complex drawings for electrical systems using CAD systems	60
UEENEEI127A	Analyse complex electronic circuits controlling fluids	80
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
UEENEEM035A	Conduct a conformity assessment of explosion-protected equipment — coal mining	40
UEENEEM036A	Conduct a conformity assessment of explosion-protected equipment — gas atmospheres	40
UEENEEM037A	Conduct a conformity assessment of explosion-protected equipment — dust atmospheres	40
UEENEEM054A	Plan electrical installations for hazardous areas — gas atmospheres	20
UEENEEM064A	Conduct audit of hazardous areas installations — coal mining	60
UEENEEM065A	Conduct audit of hazardous areas installations — gas atmospheres	60
UEENEEM066A	Conduct audit of hazardous areas installations — dust	60

	atmospheres	
UEENEEM067A	Assess the fitness-for-purpose of hazardous areas explosion-protected equipment — coal mining	60
UEENEEM068A	Assess the fitness-for-purpose of hazardous areas explosion-protected equipment — gas atmospheres	60
UEENEEM069A	Assess the fitness-for-purpose of hazardous areas explosion-protected equipment — dust atmospheres	60

Group E – Qualification Elective Units You must complete units to a minimum weighting of 160 You may select all your elective units from this Group		**Weighting Points**
UEENEEC007B	Manage contract variations	40
UEENEEE127A	Use advanced computational processes to provide solutions to energy sector engineering problems	80
UEENEEE128A	Develop engineering solutions to photonic system problems	80
UEENEEE160A	Provide engineering solutions for uses of materials and thermodynamic effects	80
UEENEEE161A	Analyse static and dynamic parameters of electrical equipment	80
UEENEEE162A	Select drive components for electrical equipment design	80
UEENEEE163A	Analyse materials for suitability in electrical equipment	80
UEENEEE164A	Design electrical machine drives and production layout plans	80
UEENEEE078B	Contribute to risk management in electrotechnology systems	20
UEENEEG143A	Develop engineering solution for synchronous machine and control problems	60
UEENEEG144A	Develop engineering solutions for d.c. machine and control problems	60

UEENEEG145A	Develop engineering solutions for induction machine and control problems	60
UEENEEG160A	Evaluate performance of LV electrical machines	40
UEENEEG161A	Design and develop modifications to LV electrical machines	60
UEENEEH147A	Assess electronic apparatus compliance	60
UEENEEH184A	Modify digital signal processing (DSP) based sub-systems	80
UEENEEH185A	Design signal-conditioning subsystems	80
UEENEEH188A	Design and develop electronics - computer systems projects	40
UEENEEI123A	Design electronic control systems	60
UEENEEI128A	Set up and configure 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
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
UEENEEM075A	Design explosion-protected electrical systems — Coal	20

	mining	
UEENEEM079A	Design of gas detection systems	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.