



**Australian Government**

# **UEE60620 Advanced Diploma of Industrial Electronics and Control Engineering**

**Release 2**

# UEE60620 Advanced Diploma of Industrial Electronics and Control Engineering

## Modification History

Release 2. Updated superseded elective units.

Release 1. This is the first release of this qualification in the UEE Electrotechnology Training Package

## Qualification Description

This qualification covers competencies to design and validate/evaluate control equipment and systems, manage risk, estimate and manage projects and provide technical advice/sales.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

## Entry Requirements

The entry requirement for this qualification is:

- UEE30820 Certificate III in Electrotechnology Electrician

OR

- a current 'Unrestricted Electricians Licence' or its equivalent issued in an Australian state or territory.

## Packaging Rules

A total of **1320 weighting points** comprising:

**960 core weighting points** listed below; **plus**

**360 general elective weighting points** from the general elective units listed below.

Choose a total of **360 weighting points** elective units from the list below, of which between 0 and **180 weighting points** can be taken from Group A; between 0 and **60 weighting points** can be taken from Group B; between 0 and **100 weighting points** can be taken from Group C; between 0 and **60 weighting points** can be taken from Group D; and between **160 and 360 weighting points** can be taken from Group E (or all minimum **360 weighting points** can be taken from Group E).

**Up to 180 weighting points of the general elective units Group A**, may be selected, with appropriate contextualisation, from any relevant nationally endorsed Training Package or accredited course, provided selected units contribute to the vocational outcome of the qualification. Previously assigned weighting points are listed in the UEE Electrotechnology Training Package Companion Volume Implementation Guide (CVIG), if not listed weighting

points will be 10 points, unless directed from the Electrotechnology Industry Reference Committee (IRC).

There are units of competency within this qualification that contain pre-requisites. Units of competency that have a pre-requisite requirement are identified by this symbol \*. Refer directly to the units of competency to identify pre-requisite requirements to ensure all are complied with. A list of all pre-requisites is also provided in the UEE Pre-requisite Companion Volume.

Where imported units are selected, care must be taken to ensure all pre-requisite units specified are complied with.

<b>Core units</b>		<b>Weighting Points</b>
UEECD0003	Apply industry and community standards to engineering activities	20
UEECD0004	Apply material science to solving electrotechnology engineering problems	60
UEECD0005	Apply physics to solving electrotechnology engineering problems	60
UEECD0010	Compile and produce an energy sector detailed report	60
UEECD0014	Develop design briefs for electrotechnology projects	40
UEECD0017	Establish and follow a competency development plan in an electrotechnology engineering discipline	120
UEECD0024	Implement and monitor energy sector WHS policies and procedures	20
UEECD0026	Manage risk in electrotechnology activities	60
UEECD0036	Provide engineering solutions for problems in complex multiple path circuits	60
UEECD0039	Provide solutions to basic engineering computational problems*	60
UEECD0055	Write specifications for industrial electronics and control projects	40
UEECD0056	Apply methods to maintain currency of industry developments	20
UEECS0033	Use engineering applications software on personal computers	40
UEEEL0062	Provide engineering solutions to problems in complex polyphase power circuits*	60

UEEIC0018	Diagnose and rectify faults in digital controls systems*	60
UEEIC0020	Fault find and repair analogue circuits and components in electronic control systems*	60
UEEIC0049	Manage instrumentation and control projects*	40
UEEIC0050	Plan instrumentation and control projects*	60
UEERE0013	Develop strategies to address environmental and sustainability issues in the energy sector	20

**Group A: Imported and common elective units****Weighting Points**

BSBINS501	Implement information and knowledge management systems	50
BSBLDR522	Manage people performance	70
BSBSTR501	Establish innovative work environments	50
BSBSTR502	Facilitate continuous improvement	60
BSBTWK502	Manage team effectiveness	60

**Group B: General elective units****Weighting Points**

UEECD0030	Prepare electrotechnology/utilities drawings using manual drafting and CAD equipment and software*	60
UEECD0031	Prepare engineering drawings using manual drafting and CAD for electrotechnology applications*	60
UEEEEC0003	Assemble and set up basic security systems*	80
UEEEEC0060	Repairs basic electronic apparatus faults by replacement of components*	40
UEEEEC0075	Troubleshoot single phase input d.c power supplies*	40
UEEEL0004	Carry out basic repairs to electrical components and equipment*	40
UEEEL0045	Diagnose and rectify faults in traction lift systems*	80
UEEEL0046	Find and repair faults in LV d.c. electrical apparatus and circuits*	60
UEEEL0053	Maintain operation of electrical marine equipment and systems*	60

UEEEL0054	Maintain operation of electrical mining equipment and systems*	60
UEEHA0004	Enter a classified hazardous area to undertake work related to electrical equipment	40
UEEHA0020	Conduct detailed inspection of electrical installations for hazardous areas*	40
UEEHA0022	Determine the explosion-protection requirements to meet a specified classified hazardous area*	40
UEEHA0026	Maintain equipment associated with hazardous areas*	60
UEEIC0002	Assemble, enter and verify operating instructions in microprocessor equipped devices*	20
UEEIC0013	Develop, enter and verify discrete control programs for programmable controllers*	60
UEEIC0025	Provide solutions to extra-low voltage (ELV) electro-pneumatic control systems and drives*	60
UEEIC0038	Solve problems in density/level measurement components and systems*	40
UEEIC0039	Solve problems in flow measurement components and systems*	40
UEEIC0041	Solve problems in pressure measurement components and systems*	40
UEEIC0043	Solve problems in temperature measurement components and systems*	40
UEEIC0047	Use instrumentation drawings, specifications, standards and equipment manuals*	40

**Group C: General elective units****Weighting Points**

UEECD0032	Produce detailed electrotechnology/utilities drawings using CAD equipment and software*	60
UEECO0001	Estimate electrotechnology projects	40
UEEEL0007	Develop detailed electrical drawings*	60
UEEEL0027	Carry out low voltage electrical field testing and report findings*	60

UEEEL0044	Diagnose and rectify faults in complex lift systems*	40
UEEEL0071	Select low voltage power factor correction equipment*	40
UEEEL0072	Set up and place LV electrical apparatus and associated circuits into service*	40
UEEHA0020	Conduct detailed inspection of electrical installations for hazardous areas*	40
UEEHA0022	Determine the explosion-protection requirements to meet a specified classified hazardous area*	40
UEEHA0023	Develop and manage periodic electrical inspection and maintenance programs for hazardous areas*	20
UEEHA0026	Maintain equipment associated with hazardous areas*	60
UEEHA0038	Conduct visual and close inspection of electrical installations for hazardous areas*	40
UEEIC0012	Develop structured programs to control external devices*	40
UEEIC0014	Develop, enter and verify programs in supervisory control and data acquisition systems*	60
UEEIC0015	Develop, enter and verify word and analogue control programs for programmable logic controllers*	60
UEEIC0026	Provide solutions to fluid circuit operations*	60
UEEIC0027	Provide solutions to pneumatic-hydraulic system operations*	80
UEEIC0028	Provide solutions to problems in industrial control systems*	60
UEEIC0034	Set up industrial field control devices*	60
UEEIC0040	Solve problems in polyphase electronic power control circuits*	60
UEEIC0042	Solve problems in single phase electronic power control circuits*	60
<b>Group D: General elective units</b>		<b>Weighting Points</b>
UEECD0013	Develop and implement energy sector maintenance programs	60

UEECO0014	Prepare tender submissions for electrotechnology projects*	60
UEEEL0006	Develop detailed and complex drawings for electrical systems using CAD systems*	60
UEEEL0011	Evaluate performance of low voltage electrical apparatus*	40
UEEHA0029	Plan electrical installations for hazardous areas*	20
UEEIC0001	Analyse complex electronic circuits controlling fluids	80
UEEIC0005	Configure and maintain industrial control system networks*	60
UEEIC0010	Develop and test code for microcontroller devices	60
UEEIC0016	Diagnose and rectify faults in a.c. motor drive systems*	60
UEEIC0017	Diagnose and rectify faults in d.c. motor drive systems*	60
UEEIC0019	Diagnose and rectify faults in servo drive systems*	60
<b>Group E: General elective units</b>		<b>Weighting Points</b>
UEECD0001	Analyse materials for suitability in electrical equipment*	80
UEECD0002	Analyse static and dynamic parameters of electrical equipment	80
UEECD0012	Contribute to risk management in electrotechnology systems	20
UEECD0015	Develop engineering solutions to photonic system problems*	80
UEECD0037	Provide engineering solutions for uses of materials and thermodynamic effects	80
UEECD0049	Use advanced computational processes to provide solutions to energy sector engineering problems*	80
UEECO0003	Manage contract variations	40
UEEEC0005	Assess electronic apparatus compliance	60
UEEEC0011	Design and develop electronics/computer systems projects	40

UEEEEC0014	Design signal-conditioning sub-systems	80
UEEEEC0045	Modify digital signal processing (DSP) based sub-systems	80
UEEEL0041	Develop engineering solution for synchronous machine and control problems*	60
UEEEL0042	Develop engineering solutions for d.c. machine and control problems*	60
UEEEL0043	Develop engineering solutions for induction machine and control problems*	60
UEEHA0008	Design gas detection systems	20
UEEIC0006	Design and configure human-machine interface (HMI) networks	60
UEEIC0007	Design and use advanced programming tools, PC networks and HMI Interfacing	120
UEEIC0008	Design electronic control systems*	60
UEEIC0032	Set up electronically controlled robotically operated complex systems*	80

## Qualification Mapping Information

This qualification replaces and is not equivalent to UEE60611 Advanced Diploma of Industrial Electronics and Control Engineering

## Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>