



Australian Government

UEE50420 Diploma of Electrical Engineering

Release 4

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Modification History

Release 4. Updated superseded elective units.

Release 3. Updated superseded elective units.

Release 2. Two units added to general electives. Imported elective units updated.

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

Qualification Description

This qualification cover competencies to develop, select, commission, maintain and diagnose faults/malfunctions on advanced electrical equipment and systems.

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 **760 weighting points** comprising:

160 core weighting points listed below; plus

600 general elective weighting points from the general elective units listed below.

Choose a total of **600 weighting points** elective units from the list below, of which between **0 and 270 weighting points** can be taken from Group A; between **0 and 100 weighting points** can be taken from Group B; between **0 and 240 weighting points** can be taken from Group C; and between **260 and 600 weighting points** must be taken from Group D (or all elective units between **0 and 600 weighting points** must can be taken from Group D).

Up to **270 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.

Core units		Weighting Points
UEECD0010	Compile and produce an energy sector detailed report	60
UEECD0024	Implement and monitor energy sector WHS policies and procedures	20
UEECD0027	Participate in development and follow a personal competency development plan	20
UEECD0060	Write specifications for electrotechnology engineering projects	40
UEERE0013	Develop strategies to address environmental and sustainability issues in the energy sector	20
Group A: Imported and common elective units		Weighting Points
BSBOPS203	Deliver a service to customers	20
BSBINS501	Implement information and knowledge management systems	50
BSBSTR501	Establish innovative work environments	50
BSBLDR522	Manage people performance	70
BSBSTR502	Facilitate continuous improvement	60
BSBTWK502	Manage team effectiveness	60
ICTICT214	Operate application software packages	20
UEECD0011	Comply with scheduled and preventative maintenance program processes	20
UEECD0035	Provide basic instruction in the use of	20

	electrotechnology apparatus	
UEECO0002	Maintain documentation	20
UEECO0015	Provide quotations for installation or service jobs	20
UEECO0017	Source and purchase material/parts for installation or service jobs	20
Group B: General elective units		Weighting Points
UEEAS0007	Assemble, mount and connect control gear and switchgear*	40
UEEAS0008	Fabricate and assemble bus bars*	40
UEEAS0009	Mount and wire control panel equipment*	40
UEECD0028	Plan an integrated cabling installation system*	40
UEECS0033	Use engineering applications software on personal computers	40
UEEDV0005	Install and maintain cabling for multiple access to telecommunication services*	80
UEEDV0008	Install, modify and verify coaxial and structured communication copper cabling*	40
UEEEC0003	Assemble and set up basic security systems*	80
UEEEC0060	Repairs basic electronic apparatus faults by replacement of components*	40
UEEEC0075	Troubleshoot single phase input d.c power supplies*	40
UEEEL0004	Carry out basic repairs to electrical components and equipment*	40
UEEEL0016	Provide advice on effective and energy efficient lighting products	20
UEEEL0017	Repair and maintain mechanical components of electrical machines*	40
UEEEL0022	Supply effective and efficient lighting products for domestic and small commercial applications*	40
UEEEL0026	Align and install traction lift equipment*	20

UEEEL0033	Conduct electrical tests on LV electrical machines*	40
UEEEL0034	Conduct mechanical tests on electrical machines and components*	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
UEEEL0049	Install and maintain emergency safety systems*	60
UEEEL0052	Maintain and service traction lift systems and equipment*	40
UEEEL0053	Maintain operation of electrical marine equipment and systems*	60
UEEEL0054	Maintain operation of electrical mining equipment and systems*	60
UEEEL0055	Overhaul and repair major switchgear and control gear*	60
UEEEL0056	Place and connect electrical coils*	40
UEEEL0061	Provide advice on the application of energy efficient lighting for ambient and aesthetic effect*	20
UEEEL0066	Rewind LV direct current machines*	60
UEEEL0067	Rewind single phase machines*	40
UEEEL0068	Rewind three phase low voltage induction machines*	60
UEEEL0069	Select and arrange equipment for special LV electrical installations*	60
UEEEL0074	Wind electrical coils*	40
UEEEL0075	Inspect, test and maintain emergency alarm systems and equipment*	20
UEEEL0076	Inspect, test and maintain emergency lighting systems*	20
UEEEL0078	Install and commission whole current electricity	20

	meters*	
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
UEEHA0025	Install explosion-protected equipment and associated apparatus and wiring systems*	60
UEEHA0026	Maintain equipment associated with hazardous areas*	60
UEEIC0002	Assemble, enter and verify operating instructions in microprocessor equipped devices*	20
UEEIC0011	Develop electrical integrated systems*	20
UEEIC0013	Develop, enter and verify discrete control programs for programmable controllers*	60
UEEIC0024	Plan the electrical installation of integrated systems*	20
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
UEERA0035	Establish the basic operating conditions of air conditioning systems*	20
UEERA0036	Establish the basic operating conditions of vapour compression systems*	60
UEERA0059	Prepare and connect refrigerant tubing and	40

	fittings*	
UEERE0054	Conduct site survey for grid-connected photovoltaic and battery storage systems	30
UEERE0080	Install photovoltaic power conversion equipment to grid *	30
UEERE0081	Install photovoltaic systems to power conversion equipment *	30
UETDRIS017	Perform high voltage field switching operation to a given schedule *	40
UETDRIS032	Solve problems in network equipment*	80
UETDRIS033	Solve problems in network protection*	40
Group C: General elective units		Weighting Points
CPPHES4005	Assess household energy use and efficiency improvements	40
UEECO0001	Estimate electrotechnology projects	40
UEEEL0007	Develop detailed electrical drawings*	60
UEEEL0027	Carry out low voltage electrical field testing and report findings*	60
UEEEL0029	Conduct compliance inspection of LV electrical installations with demand exceeding 100 A per phase*	40
UEEEL0030	Conduct compliance inspection of single phase LV electrical installations*	60
UEEEL0031	Conduct compliance inspection of special LV electrical installations*	60
UEEEL0032	Conduct electrical tests on HV electrical machines*	60
UEEEL0036	Design effective and efficient lighting for residential and commercial buildings*	20
UEEEL0040	Develop compliance policies and plans to conduct an electrical contracting business*	80
UEEEL0044	Diagnose and rectify faults in complex lift	40

	systems*	
UEEEL0050	Install and replace low voltage current transformer metering*	20
UEEEL0051	Investigate and report on electrical incidents and causes*	60
UEEEL0057	Plan electrical installations with a low voltage demand up to 400 A per phase*	40
UEEEL0059	Plan low voltage switchboard and control panel layouts*	40
UEEEL0060	Prepare quotations for the supply of effective and efficient lighting products for lighting projects*	20
UEEEL0063	Provide photometric data for illumination system design	60
UEEEL0064	Rewind HV three phase induction machines rated for voltages above 3.3 kV*	60
UEEEL0065	Rewind HV three phase induction machines rated for voltages to 3.3 kV*	60
UEEEL0070	Select effective and efficient light sources and luminaries for given locations and designs*	60
UEEEL0071	Select low voltage power factor correction equipment*	40
UEEEL0072	Set up and place LV electrical apparatus and associated circuits into service*	40
UEEEL0073	Verify compliance and functionality of special LV electrical installations*	40
UEEIC0009	Develop an electrical integrated system interface for access through a touch screen*	20
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

UEEIC0018	Diagnose and rectify faults in digital controls systems*	60
UEEIC0020	Fault find and repair analogue circuits and components in electronic control systems*	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
UEERE0052	Assess energy loads and uses for energy efficiency in commercial facilities*	40
UEERE0053	Assess energy loads and uses for energy efficiency in industrial properties and enterprises*	40
UEERE0061	Design grid-connected photovoltaic power supply systems*	60
UEERE0068	Develop strategies to address sustainability issues for electrical installations*	20
Group D: General elective units		Weighting Points
UEECD0013	Develop and implement energy sector maintenance programs	60
UEECD0036	Provide engineering solutions for problems in complex multiple path circuits	60
UEECD0039	Provide solutions to basic engineering computational problems*	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
UEEEL0035	Design effective and efficient lighting for public, open and sports areas*	20
UEEEL0037	Design electrical installations with a low voltage demand greater than 400 A per phase*	40
UEEEL0062	Provide engineering solutions to problems in complex polyphase power circuits*	60
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
UEERE0062	Design micro-hydro systems*	60
UEERE0064	Design renewable energy heating systems*	120
UEERE0065	Design wind energy systems	60
UETDRIS025	Diagnose and resolve faults in distribution systems*	60
UETDRIS026	Diagnose and resolve faults in electrical apparatus*	60
UETDRIS027	Diagnose and resolve faults in transmission systems*	60

Qualification Mapping Information

This qualification replaces and is not equivalent to UEE50411 Diploma of Electrical Engineering

Links

Companion Volume Implementation Guides are found in VETNet -

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