

22653VIC
Certificate IV in Electrical Inspection

Version 1.0

**This course has been accredited under Part 4.4 of the
*Education and Training Reform Act 2006.***

Accredited for the period: 1 January 2024 to 31 December 2028

Version History:		Date
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Section A – Copyright and course classification information

<p>1. Copyright owner of the course</p>	<p>Copyright of this material is reserved to the Crown in the right of the State of Victoria on behalf of the Department of Jobs, Skills, Industries and Regions (DJSIR) Victoria.</p> <p>© State of Victoria (DJSIR) 2023</p>
<p>2. Address</p>	<p>Executive Director Higher Education and Workforce Skills and Employment Department of Jobs, Skills, Industry and Regions (DJSIR) GPO Box 4509 Melbourne Vic 3001</p> <p>Organisational Contact: Manager, Training and Learning Products Unit Higher Education and Workforce Skills and Employment Department of Jobs, Skills, Industry and Regions (DJSIR) Telephone: 13 18 23 Email: course.enquiry@djsir.vic.gov.au</p> <p>Day-to-day contact: Curriculum Maintenance Manager (CMM) Engineering Industries Box Hill Institute Private Bag 2014 Box Hill Vic 3128 Telephone: (03) 9286 9934 Email: steven.bryant@boxhill.edu.au</p>
<p>3. Type of submission</p>	<p>This submission is for re-accreditation of: 22324VIC Certificate IV in Electrical Inspection</p>
<p>4. Copyright acknowledgement</p>	<p>The following units of competency:</p> <ul style="list-style-type: none"> • BSBESB406 Establish operational strategies and procedures for new business ventures • BSBOPS203 Deliver a service to customers <p>have been imported from the BSB Business Services Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia</p> <p>The following unit of competency:</p> <ul style="list-style-type: none"> • CPCWHS1001 Prepare to work safely in the construction industry <p>has been imported from the CPC Construction, Plumbing and Services Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia</p>

Section A – Copyright and course classification information

<p>5. Licensing and franchise</p>	<p>Copyright of this material is reserved to the Crown in the right of the State of Victoria.</p> <p>© State of Victoria (DJSIR) 2023.</p> <p>This work is licensed under a Creative Commons Attribution-No Derivatives 4.0 International licence (see Creative Commons for more information).</p> <p>You are free to use, copy and distribute to anyone in its original form if you attribute the State of Victoria (DJSIR) as the author and you licence any derivative work you make available under the same licence.</p> <p>Request for other use should be addressed to:</p> <p>Executive Director Higher Education and Workforce Skills and Employment Department of Jobs, Skills, Industries and Regions (DJSIR) Email: course.enquiry@djsir.vic.gov.au</p> <p>Copies of this publication can be downloaded free of charge from the Victorian government website.</p>
<p>6. Course accrediting body</p>	<p>Victorian Registration and Qualifications Authority</p>
<p>7. AVETMISS information</p>	<p>ANZSCO code <u>Australian and New Zealand Standard Classification of Occupations</u> 312611 Safety Inspector</p> <p>ASCED Code <u>Field of Education</u> 0313 Electrical and Electronic Engineering and Technology</p> <p>National course code 22653VIC</p>

Section A – Copyright and course classification information

8. Period of accreditation

1st January 2024 to 31st December 2028



Section B – Course information

1. Nomenclature	Standard 4.1 and 5.8 AQTF 2021 Standards for Accredited Courses
1.1 Name of the qualification	Certificate IV in Electrical Inspection
1.2 Nominal duration of the course	335 - 341
2. Vocational or educational outcomes	Standard 5.1 AQTF 2021 Standards for Accredited Courses
2.1 Outcomes of the course	<p>This course aims to provide licensed electrical tradespersons and electrical engineers, with the knowledge and skills to:</p> <ul style="list-style-type: none"> • apply safety principles and control in the design and construction of electrical installations • inspect, test and verify electrical installations • carry out investigations into incidents of electrical shock. <p>The course outcomes aims to equip graduates to complete mandatory inspections of electrical installations for compliance with the requirements of the State electrical regulator – Energy Safe Victoria (ESV).</p>
2.2 Course description	<p>The purpose of the course is to equip licensed electrical tradespersons and electrical engineers with the knowledge and skills to undertake the assessment requirements administered by the Victoria's electrical regulator - Energy Safe Victoria (ESV) for licensed electrical inspectors in Class G (General).</p> <p>This course does not address the regulators assessment requirements for:</p> <ul style="list-style-type: none"> • Class H (Hazardous Areas) licence • Class V (High Voltage Installation) licence • Class M (Medical Installations) licence • Class RE (Renewables) licence. <p>It is strongly recommended that prospective students, with an engineering background, contact ESV to determine their suitability for licensing prior to undertaking the qualification. This is because students with an engineering background may not be eligible for a Class G Electrical Inspector licence.</p>

3. Development of the course

Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses

3.1 Industry, education, legislative, enterprise or community needs

An independent review into the Victorian electrical inspection regime was commissioned by Energy Safe Victoria (ESV) in 2020. The review report which was realised in March 2021, highlighted the lack of formal training available to prospective licensed electrical inspectors (LEIs). The review indicated that a key challenge for the industry was the re-establishment of the Certificate IV in Electrical Inspection which was not being offered by any Registered Training Organisation (RTO) due to the uncertainty of viable student numbers. The report also recognised the aging cohort of the existing inspectorate and the absence of a strong pipeline of prospective LEIs to replace them. The review report is available on ESV's website: <https://esv.vic.gov.au/about-esv/reports/technical-reports/independent-review-licensed-electrical-inspection-regime/>

In response to the above findings, ESV indicated it has the scope within the Electrical Safety (Registration and Licensing) Regulations 2020, to require a course of instruction as a pre-requisite for an electrical inspector's licence application.

The target cohorts for this course are licensed electrical tradespersons and electrical engineers intending to become licensed electrical inspectors. ESV has indicated less than 25 per cent of LEI candidates pass their independent licensing assessment, confirming the need for formal training prior to the ESV assessment.

The ongoing availability of this course is also supported by the Training and Learning Products Unit of the Department of Jobs, Skills, Industry and Regions (DJSIR) which has provided funding for the CMM – Engineering Industries to co-ordinate the review of the current course for reaccreditation. The process of review and updating of the current course was guided by a Course Steering Committee (CSC) consisting of key stakeholders of the electrical industries.

Members of the Course Steering Committee:

Name:	Organisation:
Sue Sizer	Energy Safe Victoria (ESV)
Stuart McIntosh	Institute of Electrical Inspectors (IEI)
Michael Cullen	Electrotechnology Industry Advisory Group (IAG)
Robbie Nichols	Clean Energy Council (CEC)
Michael Weekes	National Electrical & Communications Association (NECA - Vic).

In attendance:

3. Development of the course**Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses**

Steve Bryant (Project co-ordinator)	Box Hill Institute
Trevor Lange (Course writer)	Box Hill Institute
Sandy Robinson	Future Energy Skills
Andrew Donnison	Future Energy Skills

This course:

- does not duplicate, by title or coverage, the outcomes of an endorsed training package qualification
- is not a subset of a single training package qualification that could be recognised through one or more statements of attainment or a skill set
- does not include units of competency additional to those in a training package qualification that could be recognised through statements of attainment in addition to the qualification
- does not comprise units that duplicate units of competency of a training package qualification.

3.2 Review for re-accreditation

There is no delivery history for the current course. This is due to the cost of equipment and the absence of training resources required for an RTO to deliver the course. Currently there are other unaccredited training pathways, which a prospective electrical inspector can choose to complete prior to attempting the licensing assessment.

The review of the current course has resulted in some changes at the request of the steering committee. This is to ensure that current electrical inspectors can upgrade to the specialist licence classes without be required to under-go training for a Class G licence again.

The primary change is the removal of elective units which address the requirements of class H, M and V licences. The focus of the revised course are the training needs for the Class G (General) licence which is required before electricians are eligible to undertake the regulator's assessment for other class licences. It is intended the training requirements for class licences H, M, V and the more recent Class RE licence will be addressed individually with Course in qualifications.

Each enterprise (VU) unit has been reviewed and updated as required. Unit VU23626 is the only unit deemed as not equivalent due to the change from electrical generation system to internal combustion engine generating system. Imported training package units have also been reviewed and where required the latest version of unit is now included in the course

3. Development of the course

Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses

The course 22653VIC Certificate IV in Electrical Inspection supersedes and is not equivalent to 22324VIC Certificate IV in Electrical Inspection. This is due to the non-equivalence of the core unit VU23626.

Transition Table:

Current course: 22653VIC Certificate IV in Electrical Inspection	Superseded course: 22324VIC Certificate IV in Electrical Inspection	Relationship
VU23623 Work within the context of an electrical inspector	VU21938 Work within the context of an electrical inspector	Equivalent
VU23624 Apply fundamental principles in the design and installation of electrical installations	VU21939 Apply fundamental principles in the design and installation of electrical installations	Equivalent
VU23625 Inspect, test and verify electrical installations	VU21940 Inspect, test and administer electrical installations	Equivalent
VU23626 Inspect, test and verify internal combustion engine driven generating sets	VU21941 Inspect and test electricity generation systems	Not Equivalent
VU23627 Inspect, test and verify switchboards (≥800 Amps) and associated switchgear and control gear	VU21942 Inspect and test heavy current switchboards (≥800 Amps) and their associated switchgear and control gear	Equivalent
VU23628 Investigate incidents of electric shock	VU21943 Investigate incidents of minor electric shock	Equivalent
VU23629 Apply the "Victorian Service and Installation Rules" to inspection of electrical installations	VU21944 Apply the "Victorian Service and Installation Rules" to inspection of electrical installations	Equivalent
VU23630 Produce electrical inspection reports	VU21945 Produce electrical inspection reports	Equivalent

3. Development of the course	Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses		
		VU21946 Inspect, test and administer hazardous electrical installations	Deleted
		VU21947 Inspect, test and administer high voltage installations	Deleted
		VU21948 Inspect, test and administer medical installations	Deleted
CPCWHS1001 Prepare to work safely in the construction industry		CPCWHS1001 Prepare to work safely in the construction industry	Same unit
		UEENEEC010B Deliver a service to customers	Deleted
		BSBSMB405 Monitor and manage small business operations	Removed from this course
BSBOPS203 Deliver a service to customers			Newly imported unit
BSBESB406 Establish operational strategies and procedures for new business ventures			Newly imported unit

4. Course outcomes	Standards 5.5, 5.6 and 5.7 AQTF 2021 Standards for Accredited Courses
<p>4.1 Qualification level</p>	<p>This course is aligned with Level 4 of the Australian Qualifications Framework (AQF) in that graduates will have:</p> <ul style="list-style-type: none"> • cognitive skills to identify, analyse, compare and act on relevant Australian standards, codes of practice, regulator’s requirements and guidelines based on a broad factual, technical and theoretical knowledge base • cognitive and technical and communication skills to apply solutions to a defined range of unpredictable problems by methodically verifying compliance of all aspects of electrical installations with relevant regulatory requirements • specialist technical knowledge and skills to perform electrical inspections in a variety of contexts • specialist technical knowledge and skills to evaluating information from a variety of sources and analysing data gathered during an electrical inspection to assess compliance with regulatory requirements • ability to take responsibility for own outputs in relation to specified quality standards by meeting regulator’s reporting standards and being accountable for the findings of the report. • communication skills to guide inspection activities and provide technical advice both to the safety regulator and client. <p>The Volume of Learning for the Certificate IV in Electrical Inspection is typically 0.5 - 2 years. This incorporates structured training delivery and the opportunity for practice and reinforcement of skills including, self-directed study, research, project work and written assignments. This could include the observation of a licensed Electrical Inspector conducting an inspection of an electrical installation that is within the requirements of a Class G licence.</p>
<p>4.2 Foundation skills</p>	<p>Foundation skills applicable to the outcomes of this course are identified in each unit of competency.</p>
<p>4.3 Recognition given to the course (if applicable)</p>	<p>This course is recognised by the Victorian State electrical regulator – Energy Safe Victoria (ESV), as a preferred program of preparation for the assessment requirements for licensed electrical tradespersons to become Class G licensed electrical inspectors.</p>

4.4 Licensing/regulatory requirements (if applicable)

The course develops the skills and knowledge required to prepare applicants to meet Energy Safe Victoria (ESV) assessment requirements for licensed electrical inspectors.

However it is strongly recommended that prospective students, with an engineering background, contact [ESV](#) determine their suitability for licensing prior to undertaking the qualification. This is because students with an engineering background may not be eligible for a Class G Electrical Inspector licence.

The table below shows the relationship between units of competency in the course which prepare applicants for the assessment requirements for the class of electrical inspection licence.

Class	Units
Class G (General)	All core units plus general electives making up to a minimum of 40 hours

5. Course rules

Standards 5.8 and 5.9 AQTF 2021 Standards for Accredited Courses

5.1 Course structure

To achieve the qualification 22653VIC Certificate IV in Electrical Inspection the learner must successfully complete:

- six (6) core units
- elective unit/s to make up a minimum of 40 hours (this means between one (1) to three (3) units)

These units will prepare course graduates to meet the ESV assessment requirements for Class G – General inspector licence.

Participants who do not complete all the requirements of the course will be issued with a Statement of Attainment listing the unit/s attained.

Unit of competency code	Unit of competency title	Field of Education code (six-digit)	Pre-requisite	Nominal hours
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Core units

VU23623	Work within the context of an electrical inspector	031301	Nil	15
VU23624	Apply fundamental principles in the design and installation of electrical installations	031301	Nil	80
VU23625	Inspect, test and verify electrical installations	031301	Nil	100

VU23626	Inspect, test and verify internal combustion engine driven generating sets	031301	Nil	40
VU23627	Inspect, test and verify switchboards (≥800 Amps) and associated switchgear and control gear	031301	Nil	40
VU23628	Investigate incidents of electric shock	031301	Nil	20
Core units total hours =				295

Elective units (a minimum of 40 hours)

BSBESB406	Establish operational strategies and procedures for new business ventures	080301	Nil	45
BSBOPS203	Deliver a service to customers	080501	Nil	40
CPCWHS1001	Prepare to work safely in the construction industry	061301	Nil	6
VU23629	Apply the “Victorian Service & Installation Rules” to inspection of electrical installations	031301	Nil	20
VU23630	Produce electrical inspection reports	031301	Nil	20
Elective unit range of hours =				40 - 46
Total range of hours =				335 - 341

Standard 5.11 AQTF 2021 Standards for Accredited Courses

5.2 Entry requirements

It is essential all qualified electricians enrolling in the 22653VIC Certificate IV in Electrical Inspection must hold a current unrestricted A Class electrician's licence.

A person who has completed an electrical engineering qualification may also be eligible to enter the course. However, it is strongly recommended the person contacts [ESV](#) to determine their suitability for licensing prior to enrolling in this qualification. This is because students with an engineering background may not be eligible for a Class G Electrical Inspector license.

Applicants are best equipped to successfully undertake this course if they have as a minimum learning, literacy, numeracy and oral communication skills equivalent to Australian Core Skills Framework (ACSF) Level 3. Full details, descriptors and tests of the ACSF can be found on the website:

<https://www.dewr.gov.au/skills-information-training-providers/australian-core-skills-framework>

Applicants with language, literacy and numeracy skills at lower levels may require additional support to complete the course.

6. Assessment

Standard 5.12 and 5.14 AQTF 2021 Standards for Accredited Courses

6.1 Assessment strategy

All assessment, including Recognition of Prior Learning (RPL), must be compliant with the requirements of:

- Standard 1 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 4.1 and 4.2 of the VRQA Guidelines for VET Providers,

or

- the Standards for Registered Training Organisations 2015 (SRTOs),

or

- the relevant standards and Guidelines for RTOs at the time of assessment.

Assessment strategies must therefore ensure that:

- all assessments are valid, reliable, flexible and fair
- learners are informed of the context and purpose of the assessment and the assessment process
- feedback is provided to learners about the outcomes of the assessment process and guidance given for future options
- time allowance to complete a task is reasonable and specified to reflect the industry context in which the task takes place.

6. Assessment

Standard 5.12 and 5.14 AQTF 2021 Standards for Accredited Courses

Assessment strategies should be designed to:

- cover a range of skills and knowledge required to demonstrate the ability to inspect, test and verify an electrical installation that is within the requirements of a Class G licence;
- collect evidence on a number of occasions to suit a variety of contexts and situations, such as single-phase and multi-phase electrical installations;
- assist assessors to consistently interpret evidence of the candidate's ability to inspect, test and verify an electrical installation that is within the requirements of a Class G licence;
- recognise prior learning; and
- be equitable to all groups of learners.

Assessment methods may include:

- oral and/or written questioning
- inspection of final process outcomes
- portfolio of documentary workplace evidence
- practical demonstration of required physical tasks
- investigative research and case study analysis.

Questioning techniques should not require language and literacy skills beyond the level recommended for each unit of competency.

A holistic approach to assessment is encouraged. This may be achieved by combining the assessment of more than one unit where it better replicates working practice.

Note:

Energy Safe Victoria (ESV) **has determined** that possession of an "A" Grade Electrical licence is insufficient for claiming RPL for the unit: *VU23624 Apply fundamental principles in the design and installation of electrical installations.*

This determination has been made based on the fact that an applicant for an Electrical Inspector licence must have held an Electrician's Licence (A grade) for at least 5 years. So learners in this course are a minimum of 5 years out from completing the relevant Certificate III qualification.

Also research conducted by ESV has shown that not all electricians are using the current Australian Standards when conducting electrical installation work and are not maintaining industry currency.

Holding the licence, in itself, does not demonstrate currency, and therefore holding the licence cannot be regarded as the sole means of proving RPL. The supplying of other evidence demonstrating industry

6. Assessment	Standard 5.12 and 5.14 AQTF 2021 Standards for Accredited Courses
	<p>currency may be used to supplement an application for a RPL assessment.</p> <p>Assessment of imported units must reflect the Assessment Requirements for the relevant training package.</p>
6.2 Assessor competencies	<p>Assessment must be undertaken by a person or persons in accordance with:</p> <ul style="list-style-type: none"> • Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 3 of the VRQA Guidelines for VET Providers, <p>or</p> <ul style="list-style-type: none"> • the Standards for Registered Training Organisations 2015 (SRTOs), <p>or</p> <ul style="list-style-type: none"> • the relevant standards and Guidelines for RTOs at the time of assessment. <p>In addition, assessors must also hold a current 'G' Class - General electrical inspector's licence or have access to a person with this licence to verify the assessment of the core and general elective enterprise (VU) units.</p> <p>Units imported from training packages must reflect the requirements for assessors specified in the unit assessment requirements.</p>
7. Delivery	Standards 5.12, 5.13 and 5.14 AQTF 2021 Standards for Accredited Courses
7.1 Delivery modes	<p>While there are no restrictions on offering the Certificate IV in Electrical Inspection on either a full-time or part-time basis it is more likely to best suit the targeted cohort if the course is offered on a part time basis.</p> <p>To maximise opportunities for the course participants to have learning experiences which are as close as possible to a real workplace environment, it's recommended that electrical installation works being undertaken by a prospective electrical inspector be used for a simulated inspection, where practical to support delivery.</p> <p>Where possible delivery methods should also allow for self-directed development and achievement, high level and independent judgement and taking accountability for outputs.</p> <p>A holistic approach to delivery is recommended. This can be achieved by combining the delivery of more than one unit where it better replicates real workplace practices.</p> <p>It is recommended delivery incorporates the contribution of guest presenters from Energy Safe Victoria (ESV) and the Institute of Electrical Inspectors (IEI).</p>

7. Delivery	Standards 5.12, 5.13 and 5.14 AQTF 2021 Standards for Accredited Courses
	<p>Teachers/trainers should contextualise delivery of the course in response to learner needs, while still meeting the requirements of the units. Contextualisation of endorsed training package units must be consistent with the guidelines of the relevant training package.</p>
7.2 Resources	<p>Facilities and equipment to deliver the 22653VIC Certificate IV in Electrical Inspection requires access to:</p> <ul style="list-style-type: none"> • electrical trades training facilities and electrical installations • computer equipment and internet • sample electrical inspection reports • range of documentation such as: <ul style="list-style-type: none"> ○ Australian standards ○ ESV codes of practices for electrical inspectors ○ industry regulations and codes of practices ○ Victorian Service & Installations Rules • relevant personal protective equipment (PPE) • industry representatives (as guest presenters) from: ESV, IEI, NECA, CEC, ETU and Master Electricians. <p>Mandated assessment resources apply to the units. Refer to the Assessment Conditions of the individual units.</p> <p>Training must be undertaken by a person or persons in accordance with:</p> <ul style="list-style-type: none"> • Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guideline 3 of the VRQA Guidelines for VET Providers, <p>OR</p> <ul style="list-style-type: none"> • the Standards for Registered Training Organisations 2015 (SRTOs), <p>OR</p> <ul style="list-style-type: none"> • the relevant standards and Guidelines for RTOs at the time of assessment. <p>The units of competency imported from training packages must reflect the requirements for resources/trainers specified in the unit's assessment requirements.</p>
8. Pathways and articulation	Standard 5.10 AQTF 2021 Standards for Accredited Courses
	<p>There are no formal articulation arrangements in place for this course.</p>

8. Pathways and articulation**Standard 5.10 AQTF 2021 Standards for Accredited Courses**

Should an RTO wish to negotiate their own articulation arrangement with another training provider they should refer to the: [AQF 2nd Edition, 2013 Pathways Policy](#).

Learners who have successfully completed training package unit/s contained in this course will be eligible for credit/s into other qualifications that contain these units. Likewise, participants of this qualification will gain a credit for any endorsed training package unit/s they have successfully completed from past study.

9. Ongoing monitoring and evaluation**Standard 5.15 AQTF 2021 Standards for Accredited Courses**

The Curriculum Maintenance Manager - Engineering Industries (CMM-EI) is responsible for the ongoing monitoring and maintenance of this course during the accreditation period.

The CMM-EI will undertake a review of the course midway through the accreditation period.

The review will involve consultation with:

- course participants and graduates
- key industry representatives
- teaching/assessing staff

Any significant changes to the course resulting from the ongoing monitoring and review process will be reported to the Victorian Registrations and Quality Authority through the formal amendment process.

Section C – Units of competency

Endorsed training package units:

These units can be download from the National Register of VET <https://training.gov.au/Home/Tqa>

BSBESB406	Establish operational strategies and procedures for new business ventures
BSBOPS203	Deliver a service to customers
CPCWHS1001	Prepare to work safely in the construction industry

Enterprise units - contained in this document:

VU23623	Work within the context of an electrical inspector
VU23624	Apply fundamental principles in the design and installation of electrical installations
VU23625	Inspect, test and verify electrical installations
VU23626	Inspect, test and verify internal combustion engine driven generating sets
VU23627	Inspect, test and verify switchboards (≥ 800 Amps) and associated switchgear and control gear
VU23628	Investigate incidents involving electric shock
VU23629	Apply the 'Victorian Service & Installations Rules' to the inspection of electrical installations
VU23630	Produce electrical inspection reports

Unit code	VU23623
Unit title	Work within the context of an electrical inspector
Application	<p>This unit describes the performance outcomes, skills and knowledge applied by a licensed electrical inspector as defined by Victoria's electrical safety regulator – Energy Safe Victoria (ESV).</p> <p>It provides the context in which an electrical inspector works and clarifies the requirements for the different classes of electrical inspectors as determined by Energy Safe Victoria.</p> <p>The unit applies to an A grade licensed electrician or a electrical engineer preparing for assessment by Energy Safe Victoria to become a licensed Class 'G' (General) electrical inspector.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Establish the context of electrical inspection work	1.1	Role and responsibilities of an electrical inspector are confirmed
		1.2	Requirements of the different classes of licences specified by the regulator are identified
		1.3	Work context of the different classes of electrical inspector as defined by Energy Safe Victoria, are differentiated
		1.4	Relevant electrical standards and regulations set by the regulator are interpreted
		1.5	Relevant occupational health and safety (OHS) and risk control measures for conducting electrical inspection work are determined
		1.6	Environmental requirements and heritage issues relating to electrical inspection work are determined
		1.7	Regulator's reporting requirements for the outcomes of electrical inspections are clarified

Element		Performance Criteria	
		1.8	Recipients of the electrical inspection report of completed work are identified
2	Work within an appropriate electrical inspection framework	2.1	Context of the inspection work is determined and its correct alignment with the class of electrical inspector is confirmed
		2.2	Limitation in personal licence classification for specific electrical environments are acknowledged and appropriate action taken
		2.3	Appropriate personnel are consulted before conducting the inspection
		2.4	Relevant OHS and environmental requirements for conducting the electrical inspection work are applied
		2.5	Appropriate risk control measures are implemented to ensure the work area is safe for electrical inspection
		2.6	Non-compliance defects are documented and action taken within the scope of the inspection responsibilities and regulatory requirements
		2.7	Inspection report is prepared and issued to the customer, electrical contractor and regulator in accordance with regulatory requirements

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.

Skill	Description
Reading skills to:	investigate and interpret the ESV's licensing requirements for the different classifications of electrical inspectors research and interpret standards, regulations and rules related to electrical inspection activities
Writing skills to:	meet reporting requirements related to electrical inspection activities
Oral communication skills to:	seek advice from regulator regarding electrical inspection activities

Foundation Skills

Technology skills to:	assess compliance and areas of non-compliance in an electrical installation
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Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23623 Work within the context of an electrical inspector	VU21938 Work within the context of an electrical inspector	Equivalent

Assessment Requirements

Title	Assessment Requirements for VU23623 Work within the context of an electrical inspector
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • prepare for and safely carry out within the framework of Class G two (2) installation inspections documenting areas of compliance and non-compliance in accordance with ESV's reporting requirements.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • role and responsibilities of an electrical inspector • Electricity Safety (General) Regulations • licensing requirements for electrical inspectors • classification of electrical inspector licences as defined by the Victoria's electrical regulator - Energy Safe Victoria (ESV) include: <ul style="list-style-type: none"> ○ Class G (General) licence ○ Class H (Hazardous Areas) licence ○ Class V (High Voltage) licence ○ Class M (Medical) licence ○ Class RE (Renewable) licence • regulatory requirements for reporting outcomes of electrical inspections including Certificates of Inspection • OHS requirements when working with electricity • technical standards, regulations and codes for general electrical installations • ESV defects list • electrical safe work practices • hazards and risk management in the workplace • environmental and heritage issues
Assessment Conditions	<p>This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.</p> <p>Resources include access to:</p> <ul style="list-style-type: none"> • range of relevant exercises, case studies and/or other simulations • relevant materials, tools, equipment and personal protective equipment (PPE) • applicable documentation, including certificates of Inspections, workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals <p>Assessor requirements</p>

Assessment Requirements

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.

Unit code	VU23624
Unit title	Apply fundamental principles in the design and installation of electrical installations
Application	<p>This unit describes the performance outcomes, skills and knowledge required to apply safety principles and control in the design and installation of electrical installations.</p> <p>It requires the ability to assess the adequacy of control and protection, performance requirements with consideration of maximum demand, current carrying capacity of cables, voltage drop requirements, selectivity and discrimination of protective devices, cable installation methods, location and routes as well as verification of cable routes, terminations, circuits and connections.</p> <p>The unit applies to an A grade licensed electrician or a electrical engineer preparing for assessment by Energy Safe Victoria to become a licensed Class 'G' (General) electrical inspector.</p> <p>Note:</p> <p>ESV has determined that possession of an A grade electrical licence is insufficient for claiming RPL for the unit VU236224 Apply fundamental principles in the design and installation of electrical installations.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Source relevant information for the design and installation of the electrical work	1.1	Extent and nature of the electrical installation is determined from job specifications and/or in consultation with appropriate person(s)
		1.2	Information about the safety aspects and performance requirements of the electrical installation are interpreted
		1.3	Safety and other regulatory requirements with which the electrical installation must comply are identified and interpreted
		1.4	Load requirements for individual current-using equipment are confirmed from job specifications and/or from consultation with appropriate person/s

Element		Performance Criteria	
		1.5	Cable routes, lengths of cables and the conditions in which the wiring system is to operate are determined
2	Incorporate safety principles in the design and installation of electrical installations	2.1	Wiring systems are selected for suitability for the environments in which they are to operate
		2.2	Cable conductor sizes are selected to meet current-carrying capacity requirements, as well as voltage-drop and earth fault-loop impedance limitations
		2.3	Circuit protective devices are selected to meet requirements for coordination with conductor current-carrying capacity
		2.4	Circuits, control and protective devices are arranged to ensure safe and functional operation of the installation and to comply with technical standards and the job specifications
		2.5	Earthing is arranged and terminated to comply with the requirements of the multiple earthed neutral (MEN) system
		2.6	Residual current devices are selected to meet the required circuit switching and tripping currents required
		2.7	Switchgear/control gear is selected to meet current, voltage and ingress protection (IP) ratings, as well as functional requirements
		2.8	Switchboards are arranged to accommodate control and protective devices, links, safety services and other distributor equipment in accordance with requirements
3	Document the safety controls and protection arrangements for electrical installations	3.1	Confirmation is obtained from manufacturers/suppliers that the electrical equipment selected complies with all of the requirements of the installation
		3.2	Reasons for selections made, including relevant calculations, are documented in accordance with established procedures
		3.3	Electrical installation arrangement and specifications for all selected items are documented, in accordance with established procedures and forwarded to appropriate person(s)

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.

Skill	Description
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Foundation Skills

Reading skills to:	investigate and interpret the electrical equipment specifications to determine suitability of selected components research and interpret standards, regulations and rules related to electrical inspection activities
Writing skills to:	document compliance report of electrical inspection activities to meeting regulators requirements
Oral communication skills to:	seek advice from state regulator regarding electrical inspection activities
Numeracy skills to:	calculate relevant electrical parameters, such as voltage drop in a given circuit, or fault loop impedance for a given circuit arrangement
Problem-solving skills to:	manage unexpected situations in the inspection process
Planning and organising skills to:	sequence inspection tasks in the most time efficient way
Technology skills to:	carry out an installation that conforms with regulatory requirements

Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23624 Apply fundamental principles in the design and installation of electrical installations	VU21939 Apply fundamental principles in the design and installation of electrical installations	Equivalent

Assessment Requirements	
Title	Assessment Requirements for VU23624 Apply fundamental principles in the design and installation of electrical installations
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • apply safety principles and control in the design and installation of electrical installations on two (2) occasions of which one (1) must be in a damp environment.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • safety principles when working with electricity, as given in Part 1 (Section 1) of the Wiring Rules in AS/NZS 3000 with deemed-to-comply requirements in Sections 2 to 8 • compliant methods for providing protection • meaning of terms ‘touch voltage’ and ‘touch current’ • requirements for installation, design and selection of equipment • application and arrangement of an isolated supply • technical standards, regulations and codes for electrical installations • electrical wiring systems • factors affecting the suitability of wiring systems • electrical installations, wiring, cabling and accessories • electrical installations equipment requirements • cable routes and methods of mechanical protection and support • prohibited cable locations • power cable and conductor connections • current requirements for given final sub-circuits • switchboard/distribution boards compliance requirements
Assessment Conditions	<p>ESV has determined that possession of an A grade electrical licence is insufficient for claiming RPL for the unit VU23624 Apply fundamental principles in the design and installation of electrical installations.</p> <p>This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.</p> <p>Resources include access to:</p> <ul style="list-style-type: none"> • applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals • tools and components for the installation • damp environment for one installation

Assessment Requirements

Assessor requirements:

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.

Unit code	VU23625
Unit title	Inspect, test and verify electrical installations
Application	<p>This unit describes the performance outcomes, skills and knowledge required to safely perform the visual inspection and testing of electrical equipment and associated wiring installed in an electrical installation.</p> <p>It requires the ability to organise and sequence the tasks for an inspection, select the appropriate equipment for testing the installation, interpret wiring diagrams, conducting the inspection and documenting the inspection including areas of non-compliance.</p> <p>The unit applies to an A grade licensed electrician or a electrical engineer preparing for assessment by Energy Safe Victoria to become a licensed Class 'G' (General) electrical inspector.</p> <p>This unit does not include electrical installations classified as H, V, M and RE as prescribed by the regulator.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Plan to conduct inspection and testing	1.1	Relevant occupational health and safety (OHS) requirements for the work area are identified
		1.2	Inspection and testing requirements are determined from the regulatory requirements and/or discussions with appropriate personnel
		1.3	Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved at the work site
		1.4	Where applicable, necessary work permits are obtained from appropriate personnel, in accordance with regulatory requirements
		1.5	Resources, tools and test equipment needed for the tasks are obtained in accordance with enterprise procedures and checked for correct operation and safety
2	Conduct inspection and testing of electrical	2.1	Relevant OHS policies and procedures for carrying out the inspection and testing are followed

Element		Performance Criteria	
	installations	2.2	Need to test or measure live is determined in strict accordance with OHS requirements and when necessary conducted within established safety procedures
		2.3	Equipment/machines are checked as being isolated, where necessary, in strict accordance with OHS requirements and industry code of practice
		2.4	Detailed inspection and testing of the consumer's mains and main switchboard is conducted methodically to verify compliance of protection, metering, earthing systems, circuit arrangements and labelling
		2.5	Detailed inspection and testing of circuits is conducted methodically to verify compliance of the installed wiring, accessories, switchgear/control gear and current consuming devices for compliance with the appropriate documentation
		2.6	Detailed inspection and testing is conducted to verify compliance of earthing conductors, insulation resistance, polarity, correct circuit connections and operational requirements of residual current devices
		2.7	Defects that may affect the integrity of the protected equipment and wiring system are identified and recorded
		2.8	Equipment parts and circuit connections are replaced after the inspection and testing of each item, in a manner that ensures the integrity of the protection system is maintained
		2.9	Defects are identified with reference to appropriate clauses in appropriate standards or regulations
		2.10	Defects as identified are recorded on the Certificate of Inspection using ESV defect list number
		3	Document and take action on inspection outcomes
3.2	Actions are taken on non-compliant defects, in accordance with the scope of inspection responsibilities		
3.3	Work site is made safe in accordance with established safety procedures		
3.4	Relevant inspection report is made and issued to customer, licensed electrical worker and regulator in accordance with regulatory requirements		

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.



Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.

Skill	Description
Reading skills to:	research and interpret the electrical equipment specifications to determine suitability of selected components research and interpret standards, regulations and rules related to electrical inspection activities
Writing skills to:	document compliance report of electrical inspection activities to meet regulators requirements
Oral communication skills to:	seek advice from state regulator or other relevant person/s regarding electrical inspection activities provide advice to clients regarding areas of non-compliance
Numeracy skills to:	calculate relevant electrical parameters, such as voltage drop in a given circuit, or fault loop impedance for a given circuit arrangement
Problem-solving skills to:	manage unexpected situations during the inspection process
Planning and organising skills to:	sequence inspection tasks in the most time efficient way
Technology skills to:	assess compliance and areas of non-compliance in an electrical installation

Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23625 Inspect, test and verify electrical installations	VU21940 Inspect, test and administer electrical installations	Equivalent

Assessment Requirements

Title	Assessment Requirements for VU23625 Inspect, test and verify electrical installations
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • safely perform the inspection and testing of electrical equipment and associated wiring for an electrical installation on two (2) occasions of which one (1) must be a 3 phase installation • document each installations compliance/non-compliance in accordance with regulators inspection reporting requirements.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • occupational health & safety (OHS) requirements when working with electricity, such as compliance with AS/NZS 3012 and AS/NZS 3000 and AS/NZS3017 and AS/NZS 4836 standards • technical standards, regulations, processes, procedures and codes for general electrical installations • electrical safe work practices • electrical wiring systems • electrical installations, wiring and accessories • electrical installations, equipment requirements • cables installed within buildings, structures and premises • power cable and conductor connections • testing devices • alternating current rotating machines • single and three-phase transformers • luminaries and lighting systems • environmental and heritage issues • regulatory requirements for reporting and documenting non-compliance issues.
Assessment Conditions	<p>This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.</p> <p>Resources include access to:</p> <ul style="list-style-type: none"> • relevant materials, tools, equipment and personal protective equipment (PPE) • applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals • two electrical installations each in a different context.

Assessment Requirements

Assessor requirements

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.

Unit code	VU23626
Unit title	Inspect, test and verify internal combustion engine driven generating sets
Application	<p>This unit describes the performance outcomes, skills and knowledge required to inspect, test and verify internal combustion engine driven generating sets as described in AS/NZS 3010 Electrical Installations – Generating Sets.</p> <p>It requires the ability to organise and sequence the tasks for an inspection, select appropriate equipment for testing the installation, interpret wiring diagrams, conducting the inspection and documenting the inspection including areas of non-compliance.</p> <p>The unit applies to an A grade licensed electrician preparing for assessment by Energy Safe Victoria (ESV) to become a licensed Class 'G' (General) electrical inspector.</p> <p>This unit does not include the inspection, testing and verification of photo-voltaic generation systems or battery storage systems, nor the arrangement and co-ordination of these systems with a generating set.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Plan to conduct inspection and testing of generating set	1.1	Relevant occupational health and safety (OHS) requirements and risk control measures and procedures for the work area are identified
		1.2	Inspection and testing requirements are determined from the regulatory requirements or discussions with appropriate personnel
		1.3	Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved at the work site
		1.4	Where applicable, necessary work permits are obtained from appropriate personnel, in accordance with regulatory requirements

Element		Performance Criteria	
		1.5	Resources, tools and test equipment needed for the tasks are obtained in accordance with enterprise procedures and checked or verified for correct operation and safety
2	Conduct compliance inspection and testing of generating set	2.1	Relevant OHS policies and procedures for carrying out the inspection and testing are followed
		2.2	Need to test or measure live is determined in strict accordance with OHS requirements and when necessary conducted within established safety procedures
		2.3	Configuration of the generation set is identified as either normal supply or alternative supply.
		2.4	Generating set is checked as being isolated, where necessary, in strict accordance with OHS requirements and industry code of practice
		2.5	Visual inspection of the generating set is conducted in accordance with relevant industry standards and regulatory requirements
		2.6	Visual inspection of the electrical installation related to the generating set is conducted in accordance with relevant industry standards and regulatory requirements
		2.7	Mandatory tests of the electrical installation related to the generating set is conducted in accordance with relevant industry standards and regulatory requirements
		2.8	Non-compliances are identified with reference to relevant clauses in appropriate standards
3	Document and take action on inspection outcomes	3.1	Identified non-compliances are recorded on the prescribed Certificate of Inspection using ESV defect list number
		3.2	Electrical installation is made safe in accordance with established safety procedures
		3.3	Relevant inspection report is made and issued to customer, licensed electrical worker and regulator in accordance with regulatory requirements.

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.

- Regulatory requirements for internal combustion engine driven generating sets include, but are not limited to:
 - Victorian Electricity Safety Act
 - Victorian Electricity Safety (General) Regulations
 - Victorian Distributors Service and Installation Rules (SIRs)
 - Occupational Health & Safety Act (VIC)

Range of Conditions

- Australian standards
- Australian Standards requirements for internal combustion engine driven generating sets, including but not limited to:
 - AS/NZS 3000 Wiring Rules
 - AS/NZS 3010 Electrical Installations – Generating Sets
 - AS/NZS 3008.1.1 Selection of Cables
 - AS/NZS 4836 Code of Practice for Safe Electrical Work (Low Voltage Electrical Installations)
 - AS/NZS 3017 Electrical Installations – Verification Guidelines
 - AS/NZS 4509 Series Standalone Power Systems
- Types of internal combustion engine driven generating set installation:
 - stand-alone generator (normal supply)
 - standby generator (alternative supply)

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.

Skill	Description
Reading skills to:	research and interpret standards, regulations and rules related to internal combustion engine driven alternating current generating sets inspection activities
Writing skills to:	document inspection activities to meet regulators requirements
Oral communication skills to:	seek advice from state regulator or other relevant person/s regarding internal combustion engine driven alternating current generating sets inspection activities
Numeracy skills to:	perform calculations relevant internal combustion engine driven generating set parameters such as, over-current protection
Problem-solving skills to:	manage unexpected situations in the inspection process
Planning and organising skills to:	sequence inspection tasks in the most time efficient way
Technology skills to:	assess compliance and areas of non-compliance in an electrical installation

Foundation Skills

Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23626 Inspect, test and verify internal combustion engine driven generating sets	VU21941 Inspect and test electricity generation systems	Not equivalent

Assessment Requirements	
Title	Assessment Requirements for VU23626 Inspect, test and verify internal combustion engine driven generating sets
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • safely perform a visual inspection and testing of two (2) types of installations of internal combustion engine driven generating sets, in accordance with regulators and Australian Standards requirements • document each systems compliance/non-compliance in accordance with regulators inspection reporting requirements.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • OHS requirements, including: <ul style="list-style-type: none"> ○ risk control methods ○ protective personal equipment (PPE) ○ local site induction operation procedures • environmental requirements, including: <ul style="list-style-type: none"> ○ gas, fume, vapour, smoke emissions, including fugitive emissions ○ excessive noise • types of internal combustion engine driven generating sets including: <ul style="list-style-type: none"> ○ normal supply ○ alternative supply • obligations of an electrical inspector • regulatory requirements for internal combustion engine driven generating sets, including adequate ventilation requirements • earthing requirements for compliance for internal combustion engine driven generating set installations in conjunction with the grid connected electrical installation Multiple Earth Neutral (MEN) arrangement • installation requirements encompassing operating systems for equipment, including automatic starting of the generator and change-over systems and requirements • wiring systems, switchgear, control gear and accessories installed to provide control and protection of engine driven generation systems • testing requirements in accordance with Australian Standards • testing methods for electricity generation systems that encompass: <ul style="list-style-type: none"> ○ normal supply (stand-alone) generation ○ alternative supply (stand-by) generation, ○ switchboard arrangements ○ metering • test equipment, including but not limited to

Assessment Requirements	
	<ul style="list-style-type: none"> ○ insulation resistance & continuity tester ○ multimeter & ammeter ○ voltage tester ○ independent earth reel & spike • regulatory requirements for reporting and documenting non-compliance issues
Assessment Conditions	<p>This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.</p> <p>Resources include access to:</p> <ul style="list-style-type: none"> • relevant materials, tools, equipment and personal protective equipment (PPE) • applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals • two (2) types of internal combustion engine driven generating set installations for inspection <p>Assessor requirements</p> <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p> <p>In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.</p>

**VU23627 Inspect, test and verify switchboards (≥800 Amps)
and associated switchgear and control gear**

Unit code	VU23627
Unit title	Inspect, test and verify switchboards (≥800 Amps) and associated switchgear and control gear
Application	<p>This unit describes the performance outcomes, skills and knowledge required to safely perform the inspection and testing of electrical switchboards (≥800 Amps), the associated fixed electrical equipment and wiring installed in switchgear and control gear.</p> <p>It requires the ability to organise and sequence the tasks for an inspection, select the appropriate equipment for testing the installation, interpret wiring diagrams, conducting the inspection and documenting the inspection including areas of non-compliance.</p> <p>The unit applies to an A grade licensed electrician preparing for assessment by Energy Safe Victoria (ESV) to become a licensed Class 'G' (General) electrical inspector.</p> <p>This unit does not include electrical installations classified as H, V, M or RE as prescribed by the regulator.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Plan to conduct inspection and testing of switchboards	1.1	Relevant occupational health and safety (OHS) requirements and risk control measures and procedures for the work area are identified
		1.2	Inspection and testing requirements are determined from the regulatory requirements and/or discussions with appropriate personnel
		1.3	Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved at the work site
		1.4	Where applicable, necessary work permits are obtained from appropriate personnel, in accordance with regulatory requirements
		1.5	Resources, tools and test equipment needed for the tasks are obtained in accordance with enterprise procedures and checked for correct operation and safety



VU23627 Inspect, test and verify switchboards (≥800 Amps) and associated switchgear and control gear

Element		Performance Criteria	
2	Conduct inspection and testing of switchboards	2.1	Relevant OHS/WHS policies and procedures for carrying out the inspection and testing are followed
		2.2	The need to test or measure live is determined in strict accordance with OHS requirements and when necessary conducted within established safety procedures
		2.3	Circuits are checked as being isolated from supply, where necessary, in strict accordance with OHS requirements and procedures
		2.4	State of switchboard components is determined by measurements, tests and inspections and the results recorded
		2.5	Evidence that the switchgear and control gear complies with the relevant AS/NZS standards and verification documents obtained from manufacturers is confirmed
		2.6	Detailed inspection and testing of the equipment, wiring and protection systems is conducted, as outlined in AS/NZS relevant standards
		2.7	Methods for dealing with unexpected situations are applied on the basis of safety and specified work outcomes and discussed with appropriate personnel
3	Document and take action on inspection outcomes	3.1	Non-compliant defects are identified with reference to appropriate clauses in regulatory standards and documented on the Certificate of Inspection in accordance with regulatory requirements
		3.2	Actions are taken on non-compliant defects, in accordance with the scope of inspection responsibilities
		3.3	Work site is made safe in accordance with established safety procedures
		3.4	Relevant inspection report is made and issued to customer, licensed electrical worker and regulator in accordance with regulatory requirements

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.



VU23627 Inspect, test and verify switchboards (≥800 Amps) and associated switchgear and control gear

Foundation Skills

Skill	Description
Reading skills to:	investigate and interpret the switchboard and associated switchgear and control gear specifications to determine suitability of selected components research and interpret standards, regulations and rules related to heavy current switchboard inspection activities
Writing skills to:	document compliance report of switchboard inspection activities to meet regulators requirements
Oral communication skills to:	seek advice from state regulator or other relevant person/s regarding switchboard inspection activities
Numeracy skills to:	calculate prospective fault currents and arc fault clearing times.
Problem-solving skills to:	manage unexpected situations in during the inspection process
Planning and organising skills to:	sequence inspection tasks in the most time efficient way
Technology skills to:	assess compliance and areas of non-compliance in an electrical installation

Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23627 Inspect, test and verify switchboards (≥800 Amps) and associated switchgear and control gear	VU21942 Inspect and test heavy current switchboards (≥800 Amps) and their associated switchgear and control gear	Equivalent

Assessment Requirements

Title	Assessment Requirements for VU23627 Inspect, test and verify switchboards (≥800 Amps) and associated switchgear and control gear
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • safely carry out a visual inspection and testing of a switchboard (≥800 Amps) and associated switchgear and control gear in accordance with regulators requirements • document compliance/non-compliance issues in accordance with regulators inspection reporting requirements.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • OHS requirements when working with electricity, such as compliance with AS/NZS 3012 and AS/NZS 3000 and AS/NZS 3017 and AS/NZS 4836 standards • technical standards, regulations, processes, procedures and codes for the installation of heavy current switchboards and associated switchgear and control gear • types and applications of switchgear and control gear • interlocking systems encompassing: <ul style="list-style-type: none"> ○ external interlocking systems ○ internal interlocking systems • control and protection of switchgear and control gear • installation requirements encompassing operating systems for equipment • electrical switchgear and control gear protection methods encompassing: <ul style="list-style-type: none"> ○ operation of the switchgear when it opens under load ○ the settings and operation required for magnetic, short-circuit thermal overload and instantaneous protective devices and coordination with equipment ○ time/current curves from manufacturer’s specifications ○ effectiveness of arc suppression installed within the equipment ○ modern types of switchgear that are computer controlled and programmed ○ modern types of switchgear that are interconnected to other protected devices ○ phase-failure systems • automatic transfer switch and manual transfer switch requirements, including location, design & operation • busbar & supports • earthing arrangements

Assessment Requirements

Assessment Conditions

- regulatory requirements for reporting and documenting non-compliance issues.

This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.

Resources include access to:

- relevant materials, tools, equipment and personal protective equipment (PPE)
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals
- switchboard (≥800 Amps) and associated switchgear and control gear for inspection.

Assessor requirements:

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.

Unit code	VU23628
Unit title	Investigate incidents involving electric shock
Application	<p>This unit describes the performance outcomes, skills and knowledge required to Investigate causes of incidents involving electric shock</p> <p>It requires the ability to identify and communicate with key stakeholders, source and analyse information, ensure the electrical work is safe for inspection and conduct an investigation to determine the cause of the incident.</p> <p>The unit applies to an A grade licensed electrician or a electrical engineer preparing for assessment by Energy Safe Victoria to become a licensed Class 'G' (General) electrical inspector.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Prepare to conduct an electric shock investigation	1.1	Details of the electric shock incident are confirmed with the regulator and/or customer
		1.2	Electrical shock investigation is within the coverage of own inspector licensing classification is confirmed
		1.3	Relevant occupational health and safety (OHS) and personal protection equipment requirements for conducting an electrical shock investigation are accessed
		1.4	Risk control measures relating to electrical inspection work are determined
		1.5	Reporting requirements for the outcomes of electric shock investigations are clarified
		1.6	Strategy for conducting electrical investigation work is determined in consultation with relevant personnel
2	Conduct an electric shock investigation	2.1	Key stakeholders are consulted before conducting the inspection
		2.2	Relevant OHS policies and procedures for carrying out the work are followed
		2.3	Risk control measures are implemented and maintained to

Element	Performance Criteria
	ensure the work area is safe for the investigation
	2.4 Cause/s of the electric shock is identified and documented in accordance with the regulators requirements
	2.5 Verification that the work area is made safe is confirmed with key stakeholders
	2.6 Incident report is prepared and issued to the regulator, in accordance with regulatory requirements

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.

Skill	Description
Reading skills to:	interpret specifications to determine suitability of selected electrical components for the installation research and interpret standards, regulations and rules related to electrical inspection activities
Writing skills to:	prepare an incident investigation report detailing electrical inspection activities and cause/s of the incident in accordance with the regulators requirements
Oral communication skills to:	seek information from victim, witnesses and other key personnel
Numeracy skills to:	calculate relevant electrical component parameters to determine suitable for the installation
Problem-solving skills to:	manage unexpected situations in during the incident inspection process
Initiative and enterprise skills to:	sequence incident inspection tasks in the most time efficient way
Teamwork skills to:	determine any area/s of non-compliance as part of the incident investigation
Planning and organising skills to:	interpret specifications to determine suitability of selected electrical components for the installation research and interpret standards, regulations and rules related to electrical inspection activities
Technology skills to:	assess compliance and areas of non-compliance in an electrical installation

Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23628 Investigate incidents involving electric shock	VU21943 Investigate incidents involving minor electric shock	Equivalent

Assessment Requirements	
Title	Assessment Requirements for VU23628 Investigate incidents involving electric shock
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • investigate and determine cause/s of an incident involving electrical shock on at least two (2) occasions each in a different context • prepare an incident report for each investigation in accordance with the regulatory requirements.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • Victorian Service & Installations Rules • Electricity Safety Act 1998 • Electricity Safety (General) Regulations • confirming investigation is within coverage of own licensing classification • regulatory requirements for reporting outcomes of electric shock inspections • OHS requirements when working with electricity including PPE • awareness of technical standards, regulations and codes for general electrical installations • causes and effects of an electric shock in relation to return paths and contact points • effect of electric shock on: <ul style="list-style-type: none"> ○ the human body ○ livestock and other animals • earthing systems including: <ul style="list-style-type: none"> ○ Multiple Earth Neutral (MEN) system ○ distributor earthing ○ customer earthing • connection issues • equipotential bonding (EPB) • investigation procedures including: <ul style="list-style-type: none"> ○ risk assessment ○ identifying the problem ○ shock site testing ○ using a remote earth ○ testing appliances and circuits ○ tests at main switchboard

Assessment Requirements

- retesting after repairs
- determining various parameters such as earth impedance, neutral and earth currents

Assessment Conditions

This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.

Resources include access to:

- relevant materials, tools, equipment and personal protective equipment (PPE)
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals
- two electrical installations (each in a different context) to conduct incident investigation.

Assessor requirements

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.

VU23629 Apply the 'Victorian Service & Installations Rules' to the inspection of electrical installations

Unit code	VU23629
Unit title	Apply the 'Victorian Service & Installations Rules' to the inspection of electrical installations
Application	<p>This unit describes the performance outcomes, skills and knowledge required to safely perform the inspection and testing of electrical installations to ensure they meet the requirements of the Victorian Service & Installations Rules (VSIRs).</p> <p>It requires the ability to interpret and apply the VSIR's when carrying an inspection, identify noncompliance and report the noncompliance in accordance to the regulators requirements.</p> <p>The unit applies to an A grade licensed electrician or a electrical engineer preparing for assessment by Energy Safe Victoria to become a licensed Class 'G' (General) electrical inspector.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Plan to conduct inspection and testing	1.1	Relevant occupational health and safety (OHS) requirements and risk control measures for the work area are identified
		1.2	Victorian Service & Installations Rules (VSIRs) pertaining to the specific electrical installation and inspection tasks are identified
		1.3	Inspection and testing requirements are determined from job sheet and/or discussions with appropriate personnel
		1.4	Where applicable, necessary work permits are obtained from appropriate personnel, in accordance with regulatory requirements
		1.5	Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved at the work site
		1.6	Resources, tools and test equipment needed for the tasks are obtained in accordance with enterprise procedures and checked for correct operation and safety
2	Determine compliance	2.1	OHS and risk control measures and procedures for carrying



VU23629 Apply the 'Victorian Service & Installations Rules' to the inspection of electrical installations

Element		Performance Criteria	
	inspection requirements for the installation		out the work are followed
		2.2	Victorian Service & Installations Rules pertaining to the specific electrical installation and inspection tasks are applied
		2.3	Need to test for live is determined in strict accordance with OHS requirements and established safety procedures
		2.4	Evidence that the electrical installation complies with safety requirements is sought from manufacturers and/or regulator and sighted, where deemed necessary
		2.5	Detailed inspection and testing of the equipment, wiring and protection systems is conducted in accordance with the Victorian Service & Installations Rules (VSIRs) and the Electricity Safety (General) Regulations
		2.6	Methods for dealing with unexpected situations are applied on the basis of safety, specified work outcomes and discussed with appropriate personnel
3	Document and action the inspection outcomes	3.1	Non-compliant defects are documented and actions taken in accordance with the scope of inspection responsibilities and the Victorian Service & Installations Rules (VSIRs)
		3.2	Work site is made safe in accordance with established safety procedures
		3.3	Inspection report is made and issued to customer, electrical contractor and supply authority in accordance with their requirements

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.

Victoria Service and Installations Rules (VSIRs) provide standards for Victoria's five electrical power distributors e.g. AusNet, Citipower, Jemena, Powercor and United Energy. These rules are set by the Victoria Service Installation Rules Management Committee, to help distributors to comply with their regulatory obligations. The VSIRs form the "Reasonable Technical Requirements" for the connection of electrical installations to the Victorian Electricity Distribution Networks.

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.

Skill	Description
Reading skills to:	interpret specifications to determine suitability of selected electrical components for the installation interpret the Victorian Service & Installations Rules and the Electricity safety (General) Regulations
Writing skills to:	prepare report for electrical inspection in accordance with the regulators requirements
Oral communication skills to:	seek information from other personnel regarding the electrical inspection
Numeracy skills to:	calculate relevant electrical component parameters to determine suitable for the installation
Problem-solving skills to:	manage unexpected situations in during the inspection process
Planning and organising skills to:	sequence inspection tasks in the most time efficient way

Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23629 Apply the 'Victorian Service & Installations Rules' to the inspection of electrical installations	VU21944 Apply the 'Victorian Service & Installations Rules' to the inspection of electrical installations	Equivalent

Assessment Requirements	
Title	Assessment Requirements for VU23629 Apply the ‘Victorian Service & Installations Rules’ to the inspection of electrical installations
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • interpret and apply the relevant Victorian Service & Installations Rules when carrying out an electrical inspection on two (2) separate occasions each in a different context • prepare a report for each electrical inspection documenting any areas of non-compliance in accordance with the electrical regulators inspection reporting requirements.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • working safely on or around electrical installations • OHS requirements when working with electricity, such as compliance with AS/NZS 4836 standard • technical standards, regulations and codes for general electrical installations • purpose and content of the Victorian Service and Installations Rules (VSIRs) and Electricity Safety (General) Regulations • supply application, connection & disconnection • supply types, use & protection • connecting to the low voltage network • low voltage metering, direct current and current transformer (CT) metering • connection and metering requirements for High voltage electrical Installations • negotiating supply arrangements, metering requirements & communicating with an electricity distributor
Assessment Conditions	<p>This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.</p> <p>Resources include access to:</p> <ul style="list-style-type: none"> • relevant materials, tools, equipment and personal protective equipment (PPE) • applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals • Victorian Service & Installations Rules (VSIRs) and Electricity Safety (General) Regulations

Assessment Requirements

- two electrical installations (each in a different context) to conduct inspections

Assessor requirements

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.

Unit code	VU23630
Unit title	Produce electrical inspection reports
Application	<p>This unit describes the performance outcomes, skills and knowledge required to produce reports for electrical safety investigations as required by the electrical regulator and/or client.</p> <p>It requires the ability to collect and analyse sources of information, sort the information into a logical sequence and prepare the report using correct terminology and references in a format required by the electrical regulator and/or client.</p> <p>The unit applies to an A grade licensed electrician or a electrical engineer preparing for assessment by Energy Safe Victoria to become a licensed Class 'G' (General) electrical inspector.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil
Competency Field	312611 - Safety Inspector
Unit Sector	Electrotechnology

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Establish reporting requirements	1.1	Purpose and scope of the report is clearly defined and confirmed with the client.
		1.2	Sources of information are identified and reliability and relevance are assessed against the reports purpose and scope
		1.3	Proposed format and production of the final report is agreed upon in discussion with the client
2	Collect and analyse information	2.1	Time efficient information collection plan is prepared to optimise the process
		2.2	Occupational health and safety (OHS) requirements are identified and applied when entering the investigation work site
		2.3	Information is collected in consultation with appropriate person(s)
		2.4	Photographs are taken and illustrations and/or graphs are prepared if required for inclusion in the report
		2.5	Information is checked to confirm for its accuracy and

Element		Performance Criteria	
			relevance to the purpose and scope of the report
		2.6	Conclusions and findings are logical and based on objective analysis of the available information
3	Finalise and present report	3.1	Draft report using appropriate terminology and formatting is prepared and discussed with client
		3.2	Any required amendments or corrections are made and the final report is provided to the client

Range of Conditions

Where the delivery and assessment of the unit is conducted in a simulated workplace the range of conditions must reflect a realistic workplace environment.

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance and not explicit in the performance criteria.

Skill	Description
Reading skills to:	interpret component specifications to determine suitability for the installation
Writing skills to:	prepare report for electrical inspection in accordance with the regulators requirements
Oral communication skills to:	seek information from other personnel for electrical inspection report
Problem-solving skills to:	manage unexpected situations in during the inspection process
Planning and organising skills to:	sequence information gathering tasks in the most time efficient way
Technology skills to:	determine area/s of non-compliance for the incident investigation report
Digital literacy skills to:	prepare charts, graphs, drawings and other visual enhancements for inclusion in the investigation report

Unit Mapping Information

Code and Title Current Version	Code and Title Previous Version	Comments
VU23630 Produce electrical inspection reports	VU21945 Produce electrical inspection reports	Equivalent

Assessment Requirements

Title	Assessment Requirements for VU23630 Produce electrical inspection reports
Performance Evidence	<p>The learner must be able to demonstrate competency in all of the elements, performance criteria and foundation skills in this unit and provide evidence of the ability to:</p> <ul style="list-style-type: none"> • prepare and present two (2) electrical investigation reports each for a different client or context that demonstrates: <ul style="list-style-type: none"> ○ detailed coverage of the issue/s being investigated, ○ substantiated conclusions based on evidence gathered ○ use of correct terminology and references to any standards, procedures, guidelines and codes of practice

Assessment Requirements	
	<ul style="list-style-type: none"> ○ suitable presentation format that conforms with the regulators requirements.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • relevant policies, procedures, guidelines and requirements for electrical investigation and reports • basic written communication techniques, including barriers to effective communication • protocols and procedures for communicating in writing with others • rules of evidence • security of information, freedom of information and confidentiality of information • identification of discriminative language • technical and professional language used in the safety sector • presentation techniques for written reports
Assessment Conditions	<p>This unit can be assessed either in the workplace or in a simulated workplace environment. Where the assessment is conducted in a simulated workplace the conditions must reflect a realistic workplace environment.</p> <p>Resources include access to:</p> <ul style="list-style-type: none"> • relevant materials, tools, equipment and personal protective equipment (PPE) • applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals • Victorian Service & Installations Rules (VSIRs) • two real or simulated electrical incidents requiring an investigation report <p>Assessor requirements</p> <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p> <p>In addition, assessors must also hold a current G Class (General) electrical inspector's licence or have access to a person with this licence to verify the assessment decisions.</p>