# 22261VIC
# Certificate II in Electrotechnology Studies (Pre-vocational)

This course has been accredited under Parts 4.4 and 4.6 of the Education and Training Reform Act, 2006. It has been entered on the *State Register of Accredited Courses and Recognised Qualifications* and the National Training Register here

**The period of accreditation is from :**
**1st January 2014 to 31st December 2018**

**Extension granted by VRQA: 1 January 2019 to 30 June 2019**


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Document Status
This document is an exact copy of the document, which is listed on the State Register of Accredited Courses and Recognised Qualifications and the National Training Register.
Version 1: Accredited from 1st January 2014 to 31st December 2018
Extended: 1 January 2019 - 30 June 2019

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## Section A: Copyright and course classification information

| | |
|---|---|
| **1. Copyright owner of the course** | Copyright of this document is held by the Department of Education and Early Childhood Development, Victoria.<br>© State of Victoria |
| **2. Address** | Department of Education and Early Childhood Development<br>Executive Director,<br>Higher Education and Skills Group<br>Training Participation and Facilitation Division,<br>GPO Box 4367<br>Melbourne 3001<br><br>Day to day contact:<br>Mr. George Adda<br>Executive Officer<br>CMM Engineering Industries<br>Box Hill Institute of TAFE<br>Private Bag 2014<br>Box Hill 3128<br>Telephone: (03) 9286 9880<br>Facsimile: (03) 9286 9838<br>Email: g.adda@bhtafe.edu.au |
| **3. Type of submission** | Re-accreditation.<br>This course will replace the accredited course:<br>21887VIC – Certificate II in Electrotechnology Studies (Pre-vocational) |
| **4. Copyright acknowledgement** | Copyright of this material is reserved to the Crown in the right of the State of Victoria.<br>© State of Victoria (Department of Education and Early Childhood Development) 2013<br><br>The following unit of competency:<br>*CPCCOHS1001A Work safely in the construction industry*<br>Is from the CPC08 - Construction, Plumbing and Services Training Package administered by the Commonwealth of Australia.<br>© Commonwealth of Australia<br><br>The following unit of competency:<br>*HLTAID002 Provide basic emergency life support*<br>Is from the HLT - Health Training Package administered by the Commonwealth of Australia.<br>© Commonwealth of Australia<br><br>The following units of competency:<br>*UEENEED102A Assemble, set-up and test computing devices*<br>*UEENEEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace* |


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| | *UEENEEE102A* *Fabricate, assemble and dismantle utilities industry components*<br>*UEENEEE103A* *Solve problems in ELV single path circuits*<br>*UEENEEE105A* *Fix and secure electrotechnology equipment*<br>*UEENEEE122A* *Carry out preparatory energy sector work activities*<br>*UEENEEE130A* *Provide solutions and report on routine electrotechnology problems*<br>*UEENEEE141A* *Use of routine/equipment/plant/technologies in an energy sector environment*<br>*UEENEEE142A* *Produce products for carrying out energy sector work activities*<br>*UEENEEE148A* *Carry out routine work activities in an energy sector environment*<br>*UEENEEE179A* *Identify and select components, accessories and materials for energy sector work*<br>*UEENEEH101A* *Repair basic computer equipment faults by replacement of modules/sub-assemblies*<br>*UEENEEH102A* *Fabricate, assemble and dismantle utilities industry components*<br>*UEENEEH104A* *Set up and test residential video/audio equipment*<br>*UEENEEJ102A* *Prepare refrigeration tubing and fittings*<br>*UEENEEJ103A* *Establish the basic operating conditions of vapour compression systems*<br>*UEENEEJ104A* *Solve problems in d.c. circuits*<br>*UEENEEK112A* *Provide basic sustainable energy solutions for energy reduction in domestic premises*<br>*UEENEEP024A* *Attach cords and plugs to electrical equipment for connection to a single phase 230 volt supply*<br>are from the UEE11 – Electrotechnology Training Package administered by the Commonwealth of Australia.<br>© Commonwealth of Australia<br><br>The following unit of competency:<br>*UETTDREL11A* *Apply sustainable energy and environmental procedures*<br>is from the UET12 – Electricity Supply Industry-Transmission, Distribution and Rail Sector Training Package administered by the Commonwealth of Australia.<br>© Commonwealth of Australia<br><br>The following units have been imported from the Victorian accredited course *22019VIC – Certificate II in Engineering Studies,* which is also copyright to the State of Victoria<br>*VU20915* *Perform basic welding and thermal cutting processes to fabricate engineering structures*<br>*VU20903* *Produce basic engineering components and products using fabrication or machining*<br>*VU20912* *Perform basic machining processes*<br>*VU20913* *Apply basic fabrication techniques* |


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| | *VU20915 Perform basic welding and thermal cutting processes to fabricate engineering structures*<br>The following units have been imported from the Victorian accredited course *22071VIC – Certificate II in Integrated Technology* which is also copyright to the State of Victoria<br>*VBP119 Perform basic network and computer assembly*<br>*VBP120 Perform basic network and computer maintenance*<br>*VBP121 Install and configure basic network and computer operating systems*<br>*VBP122 Install and test a home entertainment system*<br>*VBP128 Set up and test an embedded controller*<br>*VBP129 Test and verify correct operation of a by-wire control system*<br>*VBP130 Implement a digital circuit using a programmable logic device (PLD)*<br>*VBP131 Construct and configure a basic robotic system*<br>*VBP132 Program a basic robotic system*<br>*VBP136 Operate a small power supply system*<br>*VBP137 Assemble and connect an extra low voltage battery power source*<br>*VBP138 Maintain rechargeable battery systems*<br>*VBP139 Identify and locate building blocks of a centralised power generation system*<br>*VBP140 Set up an extra low voltage emergency power supply system (Not exceeding 32V)*<br>*VBP141 Install a sustainable extra low voltage energy supply system*<br>*VPAU645 Install and configure a home or small office network*<br>*VPAU646 Install and configure a small to medium business network* |
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| **6. Course accrediting body** | Victorian Registration and Qualifications Authority |
| **7. AVETMISS information** | |

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| **ANZSCO (OCCUPATIONAL TYPE) CODES** | 341111 | Electrician (General) |
| **ASCED (FIELD OF EDUCATION) CODE** | 0313 | Electrical and Electronic Engineering and Technology |
| **National course code** | To be provided by the VRQA when the course is accredited | |


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| **8. Period of accreditation** | 1st January 2014 – 31st December 2018<br>Extenstion Granted by VRQA: 1 January 2019 – 30 June 2019 |


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## Section B: Course information

| *1.* **Nomenclature** | ***Standard 1 AQTF Standards for Accredited Courses*** |
|---|---|
| **1.1 Name of the qualification** | Certificate II in Electrotechnology Studies (Pre-vocational) |
| **1.2 Nominal duration of the course** | 458 – 478 hours |
| **2. Vocational or educational outcomes** | **Standard 1 AQTF Standards for Accredited Courses** |
| **2.1 Purpose of the course** | This pre-vocational course is primarily for school leavers and new entrants into the workforce. It provides the opportunity for those wishing to gain employment in the electrotechnology industry with the required prerequisite knowledge and skills to gain access to a wide range of apprenticeships offered within this industry.<br><br>In particular, the course provides training in basic electrical theory, electrical workshop practices, wiring and basic installation skills, the use of hand and power tools and an overview of the electrotechnology industry and the range of occupations within it. |
| ***3.*** **Development of the course** | **Standards 1 and 2 AQTF Standards for Accredited Courses** |
| **3.1 Industry / enterprise/ community needs** | The course will provide pre-employment training and pathways into apprenticeships and traineeships, further training in electrotechnology, or related industries, or entry level employment.<br><br>The Certificate II qualifications in the UEE11 Training Package are appropriate for a person working in the electrotechnology sectors, but the packaging rules are not suitable for a pre-employment or pre-apprenticeship program that provides credits into a range of qualifications in the Training Package. However, in relation to UEE22011 - Certificate II in Electrotechnology (Career Start) the main criticism from the Victorian Industry perspective is that participants of the course are not work-ready.<br><br>The currently accredited course, 21887VIC - Certificate II in Electrotechnology Studies is a prevocational course that is used to develop introductory skills mainly for young people entering the Electrotechnology industry. Accreditation of this course expires on 30 June 2014.<br><br>The course aligns to the Victorian Government's 'Securing Jobs for Your Future - Skills for Victoria' strategy to meet the demands of users, both individuals and businesses. This course aligns to the objective of skills creation, where courses are offered to people who wish to prepare for entry to work in a particular industry. |


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| | The proposed course aims to introduce young people to the wide range of career choices and provide a pathway to further training and employment. The existing qualification is primarily used as a pre-vocational TAFE sector program, but the proposed course is intended to meet the needs of a broader target group of young people.<br><br>Enrolment data for the existing 21887VIC Certificate II in Electrotechnology Studies (Pre-vocational) course illustrates the level of demand:<br>• 2009 – 1455 enrolments<br>• 2010 – 1756 enrolments<br>• 2011 – 1745 enrolments<br>• 2012 – 1676 enrolments<br><br>It is expected that enrolments in the new course will continue to show similar enrolment figures, or possible growth.<br><br>If a new qualification is introduced to the UEE11-Electrotechnology Training Package that duplicates the outcomes of this course, the course accreditation will expiry.<br><br>A Project Steering Committee (PSC) was established to identify and validate the training needs, and endorse the course content for accreditation. The members of the PSC were:<br><br>John Ingram (Chair) — E-Oz Energy Skills Australia<br>Peter Parry — E-Oz Energy Skills Australia<br>Sue Sizer — Energy Safe Victoria<br>Ray Crampton — Electrical Trades Union<br>Rodney Lovett — National Electrical & Communications Association (NECA)<br>David Bentley — NECA Skills Centre<br>Allan McLean — GoTAFE<br>Peter Collins — University of Ballarat<br><br>In attendance:<br>George Adda — CMM-Engineering Industries<br>Sam McCurdy — Dewhurst Consultancy Pty Ltd<br><br>The proposed award is not covered by a qualification within a Training Package. |
| **3.2 Review for reaccreditation** | The Curriculum Maintenance Manager – Engineering Industries has been monitoring and evaluating the existing 21887VIC – Certificate II in Electrotechnology Studies (Pre-vocational) course during its accreditation period. This has involved negotiations with RTOs delivering the course and updating endorsed units, as they have been revised.<br><br>The transition arrangements from the existing course to the new course for learners currently enrolled in the existing course is provided in Table 1. |


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|---|---|
| | This Certificate II in Electrotechnology Studies (Pre-vocational) course replaces and is **not** equivalent to 21887VIC – Certificate II in Electrotechnology Studies (Pre-vocational).<br>No new enrolments should be made into the superseded course after 30th June 2014. |

### Table 1: Transition arrangements

| 21887VIC – Certificate II in Electrotechnology Studies (Prevocational) | | Re-accredited – Certificate II in Electrotechnology Studies (Prevocational) | | Comments |
|---|---|---|---|---|
| **Unit Code** | **Unit Title** | **Unit Code** | **Unit Title** | |
| MEM12004A | Perform computations | No equivalent unit | | |
| UEENEEE002B | Dismantle, assemble and fabricate electrotechnology components | UEENEEE102A | Fabricate, assemble and dismantle utilities industry components | Equivalent |
| UEENEEE003B | Solve problems in extra-low voltage single path circuits | UEENEEE103A | Solve problems in ELV single path circuits | Equivalent |
| UEENEEE004B | Solve problems in multiple path D.C. circuits | No equivalent unit | | |
| UEENEEE005B | Fix and secure equipment | UEENEEE105A | Fix and secure electrotechnology equipment | Equivalent |
| UEENEEE007B | Use drawings, diagrams, schedules and manuals | No equivalent unit | | |
| UEENEEE033B | Document occupational hazards and risks in electrical | No equivalent unit | | |
| UEENEEE079A | Identify and select components/accessories/ materials for electrotechnology work activities | UEENEEE179A | Identify and select components, accessories and materials for energy sector work activities | Equivalent |
| UEENEEE042B | Produce routine products for carrying out electrotechnology work activities | UEENEEE142A | Produce products for carrying out energy sector work activities | Equivalent |
| UEENEEK012B | Provide basic sustainable energy solutions for energy reduction in domestic premises | UEENEEK112A | Provide basic sustainable energy solutions for energy reduction in domestic premises | Equivalent |
| UEENEEP002B | Attach cords and plugs to electrical equipment for connection to a single phase 250 volt supply | UEENEEP024A | Attach cords and plugs to electrical equipment for connection to a single phase 230 volt supply | Equivalent |
| UEENEEP008B | Conduct in-service safety testing of electrical cord assemblies and cord connected equipment | No equivalent unit | | |


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| 21887VIC – Certificate II in Electrotechnology Studies (Prevocational) | | Re-accredited – Certificate II in Electrotechnology Studies (Prevocational) | | Comments |
|---|---|---|---|---|
| **Unit Code** | **Unit Title** | **Unit Code** | **Unit Title** | |
| UEENEEC001B | Maintain documentation | No equivalent unit | | |
| UEENEED001B | Use basic computer applications relevant to a workplace | No equivalent unit | | |
| UEENEED002B | Assemble, set up and test personal computers | UEENEED102A | Assemble, set-up and test computing devices | Equivalent |
| UEENEEE022B | Carry out preparatory electrotechnology work activities | UEENEEE122A | Carry out preparatory energy sector work activities | Equivalent |
| UEENEEE041B | Use of routine equipment/plant/technologies in an electrotechnology environment | UEENEEE141A | Use of routine equipment/plant/technologies in an energy sector environment | Equivalent |
| UEENEEF001B | Lay and connect cabling for direct access to telecommunication services | No equivalent unit | | |
| UEENEEF006B | Solve problems in data and voice communications circuits | No equivalent unit | | |
| UEENEEH001B | Carry out basic repairs to computer equipment by replacement of modules/sub-assemblies | UEENEEH101A | Repair basic computer equipment faults by replacement of modules/sub-assemblies | Equivalent |
| UEENEEH002B | Carry out basic repairs to electronic apparatus by replacement of components | UEENEEH102A | Repairs basic electronic apparatus faults by replacement of components | Equivalent |
| UEENEEH004B | Set up and test residential audio/video equipment | UEENEEH104A | Set up and test residential video/audio equipment | Equivalent |
| UEENEEJ002B | Prepare refrigeration tubing and fittings | UEENEEJ102A | Prepare refrigeration tubing and fittings | Equivalent |
| UEENEEJ003B | Determine the basic operating conditions of vapour compression systems | UEENEEJ103A | Establish the basic operating conditions of vapour compression systems | Equivalent |
| UETTDREL01A | Apply environment and sustainable energy procedures | UETTDREL11A | Apply sustainable energy and environmental procedures | Equivalent |
| UETTDREL02A | Operate plant and equipment near live electrical conductors/apparatus | No equivalent unit | | |
| VBN782 | Perform basic welding and thermal cutting processes to fabricate engineering structures | VU20915 | Perform basic welding and thermal cutting processes to fabricate engineering structures | Equivalent |

## *4.* Course outcomes *Standards 1, 2, 3 and 4 AQTF Standards for Accredited Courses*

### 4.1 Qualification level

*Standards 1, 2 and 3 AQTF Standards for Accredited Courses*

The course outcomes are consistent with the distinguishing features for a Certificate II in the Australian Qualifications Framework (AQF), as outlined below.


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**Purpose**
The Certificate II in Electrotechnology Studies (Pre-vocational) qualifies individuals to undertake mainly routine work in an electrotechnology context and provides a pathway to further learning.

**Knowledge:**
Graduates of the Certificate II in Electrotechnology Studies (Pre-vocational) will have basic factual, technical and procedural knowledge within the area of electrotechnology. For example, in the application of basic electrical principles and electrical workshop practices to enhance their entry-level employment prospects in the electrotechnology industry.

**Skills:**
Graduates of the Certificate II will have:

- cognitive skills to access, record and act on a defined range of information from a range of sources. For example, compiling information on a range of occupations at electrotechnology trade level, in order to make more informed choices in the selection of vocational career paths.
- cognitive and communication skills to apply and communicate known solutions to a limited range of predictable problems. For example, solving problems in extra-low voltage single path circuits.
- technical skills to use a limited range of equipment to complete tasks involving known routines and procedures with a limited range of options. For example, fixing and securing electrical equipment.

**Application of knowledge and skills:**

Graduates of the Certificate II in Electrotechnology Studies (Prevocational) will be able to demonstrate the application of knowledge and skills:

- with some accountability for the quality of own outcomes and some responsibility for own outputs in work and learning. For example in identifying potential learning pathways.
- with limited autonomy and judgement in the completion of own defined and routine tasks in known and stable contexts. For example in completing assigned electrical tasks in a workplace environment.
- with limited autonomy and judgement to complete routine but variable tasks in collaboration with others in a team environment. For example, contributing to outcomes of simple electrical projects as a member of a team.

**Volume of learning:**
The volume of learning for this qualification is typically between 0.5 – 1 year and incorporates structured and unstructured learning activities such as:

- structured activities to develop understanding of electrotechnology fundamental principles, carry out routine work activities using hand and power tools and working safely with others.
- Unstructured activities involving investigating standards, component prices, availability and ordering from on-line catalogues.


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**4.2 Employability skills**

*Standard 4 AQTF Standards for Accredited Courses*

**Table 2: Employability Skills Summary**

| Employability Skill | Industry requirements for this course include the following facets: |
|---|---|
| **Communication** | • Collect, organise and understand information related to the work task and its relevant safety procedures<br>• Communicate ideas and information to enable confirmation of work requirement and specifications<br>• Co-operate with other workers/customers and report outcomes and/or any problems<br>• Access, read and comprehend safety instructions and procedures<br>• Share information via speech and in writing |
| **Problem Solving** | • Apply lateral thinking ideas to generate solutions in response to work problems<br>• Anticipate or clarify problems to avoid interruptions to work flows and processes<br>• Identify, assess and prioritise work risks to maintain efficiency, quality, productivity and work place safety at all times |
| **Initiative & Enterprise** | • Identify and comply with all requirements and standards for work in the Electrotechnology industry<br>• Apply enterprise best practice and quality systems<br>• Interact effectively with both internal and external industry stakeholders<br>• Initiate and follow through on the implementation of industry standards in the workplace |
| **Planning & Organising** | • Plan and organise activities including the maintenance and layout of own worksite and obtain equipment and materials to avoid work flow interruptions or wastage<br>• Collect, analyse and organise work task information<br>• Apply time management prioritising techniques |
| **Self Management** | • Plan own work within given task parameters<br>• Set, monitor and satisfy personal work goals<br>• Accept responsibility for given tasks<br>• Apply systematic and effective time management |


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| | **Learning** | • Satisfy the competency requirements for the job<br>• Maintain current knowledge of tools, devices, instruments, materials, work practices and systems<br>• Seek learning opportunities<br>• Take control and manage own learning<br>• Adopt a open approach to new ideas and techniques<br>• Set realistic learning goals for self development<br>• Monitor and respond to learning process achievements |
| | **Technology** | • Use workplace technology related to the particular work tasks including tools, devices, instruments and materials<br>• Attain and maintain required technical accreditation/authority under the industry standards<br>• Attain and maintain IT skills relevant to the Electrotechnology industry<br>• Be willing to gain knowledge and skills relevant to new and emerging technologies |
| **4.3 Recognition given to the course** | *Standard 5 AQTF Standards for Accredited Courses*<br>Not applicable | |
| **4.4 Licensing/ regulatory requirements** | *Standard 5 AQTF Standards for Accredited Courses*<br>Not applicable | |
| ***5.*** **Course rules** | **Standards 2, 6,7 and 9 AQTF Standards for Accredited Courses** | |
| **5.1 Course structure** | To achieve the award of a Certificate II in Electrotechnology Studies (Pre-vocational) participants must successfully complete:<br>– all 10 core units; and<br>– elective units making up 120-140 hours<br><br>Participants who do not complete the full course will be awarded a Statement of Attainment indicating those units, which they have successfully completed.<br>Refer to table 3 for details. | |


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**Table 3: Course structure**

| Unit of competency/ module code | Field of Education code (6-digit) | Unit of competency/ module title | Pre-requisite | Nominal hours |
|---|---|---|---|---|
| **Core units** | | | | |
| CPCCOHS1001A | | Work safely in the construction industry | None | 6 |
| HLTAID002 | | Provide basic emergency life support | None | 12 |
| UEENEEE101A | | Apply occupational health and safety regulations, codes and practices in the workplace | None | 20 |
| UEENEEE102A | | Fabricate, assemble and dismantle utilities industry components | *E101A | 40 |
| UEENEEE103A | | Solve problems in ELV single path circuits | *E101A | 40 |
| UEENEEE105A | | Fix and secure electrotechnology equipment | *E101A | 20 |
| UEENEEE130A | | Provide solutions and report on routine electrotechnology problems | None | 60 |
| UEENEEE142A | | Produce products for carrying out energy sector work activities | *E101A *E102A | 80 |
| UEENEEE148A | | Carry out routine work activities in an energy sector environment | *E101A | 40 |
| UEENEEE179A | | Identify and select components, accessories and materials for energy sector work activities | *E101A *E148A | 20 |
| | | **Total nominal hours for core units** | | **338** |

***** Add UEENEE to the code provided.

| Electives (Select electives to make up 120-140 hours) | | | | |
|---|---|---|---|---|
| **Electrical** | | | | |
| UEENEEE122A | | Carry out preparatory energy sector work activities | *E101A *E102A *E105A | 60 |
| UEENEEP024A | | Attach cords and plugs to electrical equipment for connection to a single phase 230 volt supply | E101A | 20 |
| UEENEEE141A | | Use of routine equipment plant technologies in an energy sector environment | E101A | 60 |
| UEENEEK112A | | Provide basic sustainable energy solutions for energy reduction in residential premises | None | 40 |
| UETTDREL11A | | Apply sustainable energy and environmental procedures | None | 40 |
| VU21533 | | Perform energy sector installations of extra low voltage (ELV) single path circuits | None | 40 |
| **Electronics** | | | | |
| UEENEED102A | | Assemble, set-up and test computing devices | None | 80 |
| UEENEEH101A | | Repair basic computer equipment faults by replacement of module sub-assemblies | *E101A *E102A | 40 |


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|---|---|---|---|---|
| UEENEEH102A | | Repairs basic electronic apparatus faults by replacement of components | *E002B; *E004B; *E007B. | 40 |
| UEENEEH104A | | Set up and test residential audio/video equipment | None | 40 |
| **Refrigeration** | | | | |
| UEENEEJ102A | | Prepare and connect refrigeration tubing and fittings | *E101A | 40 |
| UEENEEJ103A | | Establish the basic operating conditions of vapour compression systems | *E101A | 60 |
| UEENEEJ104A | | Establish the basic operating conditions of air conditioning systems | E101A | 20 |
| **Mechanical** | | | | |
| VU20915 | 030711 | Perform basic welding and thermal cutting processes to fabricate engineering structures | None | 60 |
| VU20912 | 030711 | Perform basic machining processes | None | 40 |
| VU20913 | 030711 | Apply basic fabrication techniques | None | 40 |
| VU20903 | 030101 | Produce basic engineering components and products using fabrication or machining | VU20912 VU20913 | 60 |
| **Computer system network** | | | | |
| VBP119 | 031305 | Perform basic network and computer assembly | None | 30 |
| VBP120 | 031305 | Perform basic network and computer maintenance | None | 30 |
| VBP121 | 020117 | Install and configure basic network and computer operating systems | None | 40 |
| VBP122 | 031317 | Install and test a home entertainment system | None | 30 |
| VPAU645 | 020113 | Install and configure a home or small office network | None | 60 |
| VPAU646 | 020113 | Install and configure a small to medium business network | VPAU645 | 60 |
| **Energy generation** | | | | |
| VBP136 | 031301 | Operate a small power supply system | None | 30 |
| VBP137 | 031301 | Assemble and connect an extra low voltage battery power source | None | 30 |
| VBP138 | 031301 | Maintain rechargeable battery systems | None | 30 |
| VBP139 | 031301 | Identify and locate building blocks of a centralised power generation system | None | 30 |
| VBP140 | 031301 | Set up an extra low voltage emergency power supply system (Not exceeding 32V) | None | 30 |
| VBP141 | 031301 | Install a sustainable extra low voltage energy supply system | None | 30 |
| **Robotics and embedded controllers** | | | | |
| VBP128 | 031305 | Install, set up and test an embedded control system | None | 30 |
| VBP129 | 031303 | Test and verify correct operation of a by-wire control system | None | 30 |


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| VBP130 | 031303 | Implement a digital circuit using a programmable logic device (PLD) | None | 30 |
| VBP131 | 030703 | Construct and configure a basic robotic system | None | 30 |
| VBP132 | 030703 | Program a basic robotic system | None | 30 |
| | | | **Total nominal hours** | **458-478** |

***** Add UEENEE to the code provided.

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| **5.2 Entry requirements** | There are no formal entry requirements for the course, although participants would be best equipped to achieve the course outcomes if they have language literacy and numeracy skills that are at least equivalent to the Australian Core Skills Framework (ACSF) level 2. Details can be found on the web site: (here) In summary this means that they are able to:<br>• use everyday language to provide information or maintain a conversation in familiar spoken contexts;<br>• use a number of reading strategies to identify and interpret relevant information within familiar text types;<br>• write using simple vocabulary, grammatical structures and conventions;<br>• select and use appropriate familiar mathematical problem solving strategies to solve problems in familiar contexts, either manually and/or using a calculator. |
| ***6.*** **Assessment Courses** | **Standards 10 and 12 AQTF Standards for Accredited** |
| **6.1 Assessment strategy** | *Standard 10 AQTF Standards for Accredited Courses*<br>All assessment (Including RPL) must be consistent with the requirements of Standard 1.5 of the *AQTF: Essential Conditions and Standards for Continuing Registration* and Standard SNR15.5 of the *Standards for NVR Registered Training Organisations.*<br>Course providers will be required to adopt an assessment strategy that:<br>• incorporates continual feedback of individual progress toward, and achievement of competencies;<br>• addresses skills, attitudes and knowledge underpinning performance;<br>• gathers sufficient evidence to judge achievement of progress towards determining competence;<br>• recognises achievement of elements/competencies regardless of where the enabling learning took place;<br>• fosters a collaborative and co-operative relationship between the learner and assessor;<br>• is flexible in regard to the range and type of evidence provided by the learner; |


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| | • provides opportunity for the learner to challenge assessment provisions and participate in re-assessment;<br>• is equitable and fair to all learners;<br>• does not unnecessarily restrict the progress of a learner ***through the course;***<br>• comprises a clear statement of both the criteria and assessment process;<br>• selects assessment tools to suit the needs of particular clients or client groups (e.g. clients with special needs) or to suit the needs of an enterprise;<br>• incorporates employability skills within industry specific competencies.<br><br>Assessment must include demonstration of competence and be supported by a range of evidence, which may include assignments, projects, observations, oral or written communications, simulations, inspections, portfolio and testimony.<br><br>Practical work must be assessed under conditions, which simulate the normal electrotechnology work environment. If course delivery is project based, formative assessment should be incorporated within the project.<br><br>The opportunity for learners to negotiate the form of assessment is also possible in many cases, e.g. alternative assessments for learners with special needs. |
| **6.2 Assessor competencies** | The National Skills Standard Council (NSSC) is responsible for determining the competencies to be held by assessors, in accordance with Standard 1.4 of the AQTF Essential Conditions and Standards for Continuing Registration and SNR 15.4 of the Standards for NVR Registered Training Organisations as set out below.<br><br>Accordingly, the NSSC has determined that from 1 July 2013, assessors must:<br>i. hold the *TAESS00001 Assessor Skill Set*, or be able to demonstrate equivalence of competencies; and<br>ii. be able to demonstrate vocational competencies at least to the level being assessed; and<br>iii. be able to demonstrate how they are continuing to develop their VET knowledge and skills as well as maintaining their industry currency and assessor competence.<br><br>Note:<br>If a person does not have all the assessment competencies as defined in (i) ,(ii) and (iii) then one or more persons with the combined expertise in (i), (ii) and (iii) may work together to conduct the assessment. |


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| **7. Delivery** | **Standards 11 and 12 AQTF Standards for Accredited Courses** |
| **7.1 Delivery modes** | *Standard 11 AQTF Standards for Accredited Courses*<br>Training may be delivered in either full time or part time mode.<br>Delivery strategies should be selected to reflect the nature of the industry specific competencies, incorporating employability skills and the needs of the learner.<br><br>These may include;<br>• traditional classroom delivery<br>• practical work<br>• simulation<br>• self-paced delivery<br>• case studies<br>• role plays<br>• guest speakers<br>Due to the potential for a dispersed distribution of learners, course providers may wish to consider flexible modes for the delivery of training.<br>It is recommended that the course be conducted using project based delivery and assessment methods to maximise opportunities for learners to have learning experiences, which are as close as possible to a future real-work environment.<br><br>The units of competency may be contextualised to meet the needs of different groups of students. Generally this means:<br>• Elements and associated performance criteria must not be altered in any way;<br>• The Range Statement may be expanded as long as it does not increase the complexity of the unit<br>• The Evidence Guide may be expanded as long as it retains the integrity of the unit and does not jeopardise the student's potential to achieve the competency.<br>• Learning and assessment resources may be tailored to the specific needs of the target group, while maintaining their validity<br>Contextualisation of any of the endorsed imported units of competency must be consistent with the guidelines of the relevant Training Package |
| **7.2 Resources** | *Standard 12 AQTF Standards for Accredited Courses*<br>The resources that should be available for this course relate to normal work practice using procedures, information and resources typical of a workplace. This should include:<br>• OH&S policy and work procedures and instructions; |


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| | • access to a simulated electrotechnology environment;<br>• access to relevant electrical safety acts, service installation rules, standards, and codes of practice;<br>• access to relevant codes of practice, regulations, and safety authorisation;<br>• operational access to relevant equipment, tools, materials and consumables;<br>• access to relevant plans, drawings and instructions to the level of operation.<br><br>**Qualifications of Trainers**<br>The National Skills Standards Council (NSSC) has determined that from 1 July 2013, trainers must:<br>i. hold the *TAE40110 Certificate IV in Training and Assessment* from the TAE10 Training and Education Training Package as a minimum qualification, or be able to demonstrate equivalence of competencies; and<br>ii. be able to demonstrate vocational competencies at least to the level being delivered and assessed; and<br>iii. be able to demonstrate how they are continuing to develop their VET knowledge and skills as well as maintaining their industry currency and trainer/ assessor competence.<br><br>Persons delivering training under the supervision of a trainer must:<br>i. work under the supervision of a trainer with the *TAE40110 Certificate IV in Training and Assessment,* or of a person who has demonstrated equivalence of competencies; and<br>ii. holds either the *TAESS00007 Enterprise Trainer – Presenting Skill Set*, or be able to demonstrate equivalence of competencies, or the *TAESS00008 Enterprise Trainer – Mentoring Skill Set*, or be able to demonstrate equivalence of competencies within two years of commencing to deliver training while under supervision; and<br>iii. be able to demonstrate vocational competencies at least to the level being delivered and assessed as well as maintaining their industry currency. |
| **8 Pathways and articulation** | *Standard 8 AQTF Standards for accredited courses*<br><br>Pathways applicable to this course are:<br>• off-the-job structured training and assessment;<br>• recognition of prior learning (RPL/RCC)<br>• a combination of the above<br><br>Counselling of participants by providers with respect to potential study pathway options is central to the successful implementation and completion of this course. This should be provided at entry to the course. |


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| | There are no formal arrangements in place for the Certificate II in Electrotechnology Studies (Pre-vocational).<br><br>However, graduates of the course will gain credits for the endorsed units of competency in nineteen set 1 apprenticeship qualifications from the UEE11 – Electrotechnology and UET12– Transmission, Distribution and Rail Sector Training Packages.<br><br>These are:<br>UEE30111 Certificate III in Business Equipment<br>UEE30211 Certificate III in Computer Systems Equipment<br>UEE30311 Certificate III in Custom Electronics Installations<br>UEE30411 Certificate III in Data and Voice Communications<br>UEE30611 Certificate III in Electrical Machine Repair<br>UEE30711 Certificate III in Switchgear and Control Gear<br>UEE30811 Certificate III in Electrotechnology Electrician<br>UEE30911 Certificate III in Electronics and Communications<br>UEE31011 Certificate III in Fire Protection Control<br>UEE31111 Certificate III in Gaming Electronics<br>UEE31211 Certificate III in Instrumentation and Control<br>UEE31411 Certificate III in Security Equipment<br>UEE31511 Certificate III in Rail - Communications and Networks<br>UEE32111 Certificate III in Appliance Service<br>UEE32211 Certificate III in Air-Conditioning and Refrigeration<br>UET30512 Certificate III in ESI – Transmission Overhead<br>UET30612 Certificate III in ESI – Power Systems – Distribution Overhead<br>UET30712 Certificate III in ESI – Power Systems – Rail Traction<br>UET30812 Certificate III in ESI – Power Systems – Distribution Cable Jointing<br><br>Entrants to the course will receive credits through the national recognition process for any of the imported units of competency, they may have gained elsewhere. |
| **9. Ongoing monitoring and evaluation** | ***Accreditation Standard 28.1.h***<br>Ongoing evaluation and validation of this course is the responsibility of the Curriculum Maintenance Manager, Engineering Industries.<br><br>A course advisory committee will be established for the ongoing monitoring and evaluation of the course. It will comprise representatives from the following areas:<br>▪ Curriculum Maintenance Manager, Engineering Industries<br>▪ course providers<br>▪ electrical regulator<br>▪ industry representatives.<br><br>The following methods will be used to monitor the course to provide data to the course advisory group: |


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| | ▪ student surveys<br>▪ employer surveys<br>▪ trainer/assessor feedback<br><br>The committee will meet at least once in the middle of the accreditation period and more frequently if necessary, to:<br>▪ review the implementation of the program;<br>▪ provide advice on changing program requirements;<br>▪ monitor and evaluate course standards, delivery and assessment;<br>▪ determine whether the course should be replaced by an endorsed Training Package qualification.<br><br>Recommendations for any significant changes will be reported through the Curriculum Maintenance Manager, Engineering Industries to the Victorian Registration and Qualification Authority (VRQA).<br><br>Examples of changes that will be reported to the VRQA include changes to:<br>• the course structure, by adding or deleting units from the core or electives, whether to reflect local industry needs or to reflect changes to Training Packages and the availability of new or revised nationally endorsed units of competency<br>• required pre-requisites and/or co-requisites<br>• the nominal duration of the course and of units<br>• copyright ownership<br>• articulation and/or credit transfer arrangements<br>• legislation such as OHS/ licensing<br><br>Course maintenance and review procedures may also indicate that the course in total should be expired if a suitable national qualification becomes available through the development or review of a Training Package. |


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# Section C – Units of competence

The following unit of competency has been developed specifically for this course:

VU21533 Perform energy sector installations of extra low voltage (ELV) single path circuits


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## VU21533 Perform energy sector installations of extra low voltage (ELV) single path circuits

**Unit descriptor**

This unit provides the skills and knowledge required to wire extra-low voltage (ELV) single path circuits and terminate associated accessories in a simulated workplace environment. This includes ELV powered devices, security, controls, integrated systems and audio/visual systems. It encompasses safe working practices and following work processes that satisfy electrical principles for safety and functionality

Practice in this unit is subject to regulations directly related to occupational health and safety and electrical regulatory requirements.

**Employability Skills**

This unit contains Employability Skills.

**Application of the unit**

This unit is intended for use in a simulated workplace training environment and not intended for application in the workplace. It is suitable for pre-employment programs involving participants who are working under supervision.

The application of this unit is subject to regulations directly related to occupational health and safety and electrical regulatory requirements

| ELEMENT | PERFORMANCE CRITERIA |
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| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. [1] Assessment of performance is to be consistent with the evidence guide.[2] |
| 1. Determine the requirements for specific extra low voltage (ELV) jobs | 1.1 Clarify the nature and location of the ELV work to be undertaken with the work supervisor or ***other appropriate person*** |
| | 1.2 Identify relevant ANZ/AS3000 standards and licensing requirements |
| | 1.3 Identify any risks or hazards associated with the work and follow established risk control measures |
| | 1.4 Identify and source the ***materials*** required to undertake the ELV work |
| | 1.5 Check tools, equipment and testing devices for correct operation and safety |


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| | 1.6 Ensure that relevant workplace health and safety requirements for the specific tasks are identified and accommodated |
| | 1.7 Seek advice from the work supervisor or other appropriate person, if required. |
| | 1.8 Communicate task requirements to ***relevant personnel*** in accordance with established procedures |
| 2. Wire ELV circuits and connect accessories | 2.1 Implement relevant workplace health and safety procedures |
| | 2.2 Work in accordance with relevant ANZ/AS3000 standards and licensing requirements |
| | 2.3 Confirm that relevant circuits/machine/plant are isolated, in accordance with OHS requirements and procedures |
| | 2.4 Install wiring/cabling and accessories to comply with relevant standards and job specifications |
| | 2.5 Refer contingencies to the work supervisor or other appropriate person for advice |
| | 2.6 Install accessories in the required locations within acceptable tolerances |
| | 2.7 Terminate cables and conductors at accessories in accordance with manufacturer's specifications and regulatory requirements |
| | 2.8 Mark cables installed for future service in accordance with the cable identification scheme and terminate according to regulatory requirements |
| | 2.9 Use sustainable energy practices to minimise waste and damage to the environment |
| 3. Finalise ELV job activities | 3.1 Follow relevant OHS work completion risk control measures for ELV jobs |
| | 3.2 Use relevant ***testing devices*** to confirm compliance with regulatory and licensing requirements, as well as safe operation of the circuit |
| | 3.3 Collect unused materials and dispose or store them, in accordance with organisational and environmental requirements |
| | 3.4 Clean the work site and make it safe in accordance with established procedures |
| | 3.5 Notify the work supervisor or other appropriate person of the completion of the work in accordance with established procedures |


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## Required skills and knowledge

This describes the essential skills and knowledge and their level, required for this unit

***Required skills:***

- Installing cables in single path ELV circuits in a simulated workplace training environment
- Terminating cables and accessories to manufacturer's specifications and requirements
- Applying cable support and protection methods
- Following safe work practices
- Cleaning the worksite
- Applying sustainability principles and practices

***Required knowledge:***

- Relevant Workplace Health and Safety regulations
- Risk control measures
- Safe working practices for wiring/cabling and terminating accessories for single path extra-low voltage circuits
- Cable protection and support methods and accessories
- Types of cables used in the electrotechnology industry and their application
- Basic cable and conductor terminations
- Technical standards, regulations and codes related to extra-low voltage work
- Sustainability principles and practices
- Environmental and heritage regulations affecting electrotechnology work

## Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below.

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| ***Other appropriate person*** may include: | • Instructor<br>• Electrician<br>• Supervisor<br>• Trainer |
| ***Materials*** includes: | • Tools<br>• Equipment<br>• Testing devices<br>• Wires<br>• Cables<br>• Protection and support devices |
| ***Relevant personnel*** may include: | • Tradespersons<br>• Supervisor<br>• Trainer |
| ***Testing devices*** may include: | • Continuity meter<br>• IR tester<br>• Multimeter |


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## Evidence guide

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines

**Critical aspects of evidence required to demonstrate competency in this unit**

- To be considered competent in this unit the candidate must be able to demonstrate the achievement of all of the elements of competency to the level defined by their associated performance criteria and incorporating the required skills and knowledge.
- Specifically they must provide evidence that they are able to:
  - Implement Workplace Health and Safety procedures and practices, including the use of risk control measures
  - Apply sustainable energy principles and practices in extra-low voltage work
  - Identify and supply the materials required for each extra-low voltage single path circuit
  - Select appropriate tools, cables and accessories
  - Follow appropriate cable routes
  - Lay wiring/cabling and terminate accessories for extra-low voltage in power and control single path circuits
  - Clean the worksite to meet sustainability and environmental requirements
  - Report the completion of the work to the appropriate person

**Context of and specific resources for assessment**

- Assessment should be conducted in a simulated workplace training environment using procedures, information and resources typical of a workplace.
- The conditions for assessment must be authentic and as far as possible reproduce and replicate the workplace
- Resources required to conduct assessment include:
  - Suitable simulated work environment
  - Relevant OHS policy, work procedures and instructions
  - Facilities, equipment and materials to undertake the work
  -

**Methods of assessment**

- Assessment must include the demonstration of practical skills on at least two occasions.
- Evidence of underpinning knowledge must be assessed using methods such as:
  - Verbal tests
  - Written tests
  - Assignments


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