

## UETTDRIS56A Install and maintain low voltage overhead services

### Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit. Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.

### Elements and Performance Criteria

#### ELEMENT PERFORMANCE CRITERIA

1	Prepare for the installation and maintenance of LV overhead services and associated equipment	1.1	Works schedule(s), including drawings, plans, requirements, established procedures, and material lists, are received, analysed and confirmed, if necessary, by site inspection.	AA Note 1 + AA Note 1 Assessment Questions
		1.2	Relevant requirements and established procedures for the work are communicated to all personnel and identified for all work sites.	UETTDREL16 + Practical Demonstration + Theory assessment
		1.3	OHS policies and procedures related to requirements and established procedures for the installation and maintenance of LV overhead services and associated equipment are obtained and confirmed for the purposes of the work to be performed and communicated.	UETTDREL16 + Practical Demonstration + Theory assessment
		1.4	Work is prioritised and sequenced following consultation with others for	AA Note 2 +

**ELEMENT PERFORMANCE CRITERIA**

		completion within acceptable timeframes and in accordance with established procedures.	AA Note 2 Assessment Questions
	1.5	Hazards are identified, OHS risks assessed and control measures are prioritised, implemented and monitored including emergency exits kept clear according to established procedures.	UETTDREL16 + Practical Demonstration + Theory assessment
	1.6	Relevant work permits are obtained to access and perform work according to requirements and/or established procedures	UETTDREL16 + Practical Demonstration + Theory assessment
	1.7	Resources including personnel, equipment, tools and personal protective equipment required for the job are obtained and confirmed in working order	AA Note 2 + AA Note 2 Assessment Questions
	1.8	Relevant personnel at worksite are confirmed current in First Aid, Pole Top Rescue and other related work procedures according to requirements.	UETTDREL16 + Practical Demonstration + Theory assessment
	1.9	Liaison and communication issues with other/authorised personnel, authorities, clients and land owners are resolved to carry out work where necessary.	UETTDREL16 + Practical Demonstration + Theory assessment
	1.10	Site is prepared according to the work schedule and to minimise risk and damage to property, commerce, and individuals in accordance with established	UETTDREL16 + Practical Demonstration +

**ELEMENT PERFORMANCE CRITERIA**

		procedures.	Theory assessment
	1.11	Personnel participating in the work, including plant operators and contractors, are fully briefed and respective responsibilities confirmed where applicable in accordance with established procedures.	UETTDREL16 + Practical Demonstration + Theory assessment
	1.12	Road signs, barriers and warning devices are positioned in accordance with requirements.	UETTDREL16 + Practical Demonstration + Theory assessment
2	Carry out installation and maintenance of LV overhead services and associated equipment	2.1	OHS and sustainable energy principles and practices to reduce the incidents of accidents and minimise waste are monitored and followed in accordance with requirements and/or established procedures.
		2.2	Lifting, climbing, working aloft, and use of power tools/equipment, techniques and practices are safely followed and, currency according to requirements confirmed. CD0007
		2.3	Essential knowledge and associated skills are applied in the safe installation and maintenance of LV overhead services and associated equipment to ensure completion to quality standards with a minimum of waste according to
			UETTDREL16 + Practical Demonstration + Theory assessment
			UEECD0007 Notes + UEECD0007 Theory assessment
			AA Note 3 + AA Note 3 Assessment

**ELEMENT PERFORMANCE CRITERIA**

		requirements.	
	2.4	LV overhead services and associated equipment are installed according to the work schedule and requirements/established procedures.	AA Note 3 + AA Note 3 Assessment
	2.5	Maintenance, including repair and/or replacement of LV overhead services and associated equipment is carried out, in accordance with the work schedule and requirements/established procedures.	OH Equipment + OH Equipment Assessment
	2.6	Hazard warnings and safety signs are recognised and hazards and assessed OHS risks are reported to the immediate authorised persons for directions according to established procedures.	OH Equipment + OH Equipment Assessment
	2.7	Unplanned events during the installation and maintenance of LV services and associated equipment are undertaken within the scope of established procedures.	OH Equipment + OH Equipment Assessment
	2.8	Known solutions to a variety of problems are applied using acquired essential knowledge and associated skills.	OH Equipment + OH Equipment Assessment
	2.9	Ongoing checks of quality of the work are undertaken in accordance with instructions and established procedures.	OH Equipment + OH Equipment Assessment

**ELEMENT PERFORMANCE CRITERIA**

3	Complete the installation and maintenance of LV overhead services and associated equipment	3.1	Work undertaken is checked/tested against works schedule for conformance with requirements and anomalies reported in accordance with established procedures.	OH Equipment + OH Equipment Assessment
		3.2	Accidents and/or injuries are reported in accordance with requirements/established procedures, where applicable.	UETTDREL16 + Practical Demonstration + Theory assessment
		3.3	Work site is rehabilitated, cleaned up and made safe in accordance with established procedures.	UEECD0007 Notes + UEECD0007 Theory assessment
		3.4	Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures.	OH Equipment + OH Equipment Assessment
		3.5	Relevant work permit(s) are signed off and, the LV overhead services and associated equipment are returned to service in accordance with requirements.	OH Equipment + OH Equipment Assessment
		3.6	Works completion records, reports, as installed /modified drawing and/or documentation and information are finalised and processed and appropriate personnel notified.	OH Equipment + OH Equipment Assessment

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

<p><b>8) Essential Knowledge and Associated Skills (EKAS):</b> This describes the essential skills and knowledge and their level, required for this unit.</p> <p>Evidence shall show that knowledge has been acquired of installing and maintaining low voltage services (overhead).</p> <p>All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.</p> <p><b>KS01-TIS56A</b>      Low voltage electrical overhead service installation</p> <p>Evidence shall show an understanding of the installation of low voltage electrical services to an extent indicated by the following aspects:</p> <p><b>T1</b>      Standards, codes, legislation, supply authority regulations and or enterprise requirements</p> <p><b>T2</b>      Requirements for the use of enterprise construction manuals, system diagrams/plans and drawings, encompassing:</p> <ul style="list-style-type: none"> <li>• Types of low voltage overhead services</li> <li>• Methods of construction and installation</li> <li>• Minimum clearances for overhead services to assets and structures</li> <li>• Ground clearances for overhead services</li> <li>• Maximum span lengths and tensions for overhead services</li> <li>• Customer poles</li> </ul> <p><b>T3</b>      Installation equipment/tools</p> <ul style="list-style-type: none"> <li>• Equipment and tools for overhead service installation</li> <li>• Fittings and hardware for overhead service installation</li> </ul>	<p><b>AA Note 1</b></p> <p><b>Note 4+ Electrical Distribution Textbook 2.1+2.2</b></p> <p><b>Note 4+ Electrical Distribution Textbook 2.1+2.2 + OH Equipment</b></p>
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## REQUIRED SKILLS AND KNOWLEDGE

<p>T4 Characteristics and applications of different types of cables encompassing:</p> <ul style="list-style-type: none"> <li>• Cable cross-sectional area of conductors</li> <li>• Current rating and fuse types and ratings</li> </ul>	<p><b>AA Note 2</b></p>
<p>T5 Stringing and terminating methods encompassing:</p> <ul style="list-style-type: none"> <li>• Energised and de-energised cables</li> <li>• Connections to point of attachment, fuse boxes and pole top boxes</li> <li>• Termination at customer pole</li> </ul> <p>OH Equipment</p>	<p><b>OH Equipment</b></p>
<p>T6 Connection of overhead services:</p> <ul style="list-style-type: none"> <li>• Types of overhead service connections</li> <li>• Live low voltage work principles</li> </ul>	<p><b>OH Equipment</b></p>
<p>T7 Techniques for maintenance of overhead service installations encompassing:</p> <ul style="list-style-type: none"> <li>• Diagnosis and repair of faults</li> <li>• Removing, repairing and replacing of damaged overhead services</li> <li>• Removing and replacing pole type fuses</li> <li>•</li> </ul>	<p><b>OH Equipment</b></p>
<p>T8 Testing and commissioning procedures encompassing:</p> <ul style="list-style-type: none"> <li>• Inspection</li> <li>• Equipment functionality tests</li> <li>• Continuity tests</li> <li>• Polarity, voltage and phase sequence tests</li> <li>• Neutral and phase identification tests</li> <li>• Neutral integrity tests</li> <li>• Meter function test</li> <li>• Testing check forms</li> </ul>	<p><b>UETDRMP011_R1</b></p>
<p>T9 Connection principles:</p> <ul style="list-style-type: none"> <li>• Purpose and function of MEN system</li> <li>• Types of connection faults</li> <li>• Causes and effects of incorrect and poor electrical connections</li> </ul>	<p><b>OH Equipment</b></p>

## REQUIRED SKILLS AND KNOWLEDGE

<ul style="list-style-type: none"> <li>• Principles of loop impedance</li> <li>• Reasons for and methods used to maintain standard phase sequencing</li> <li>• Purpose and operation of service fusing</li> <li>• Use of independent earth for testing</li> </ul>	
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		<b>Range of tools/equipment/materials/procedures/workplaces/other variables</b>	
<b>Group No</b>	<b>The minimum number of items on which skill is to be demonstrated</b>		<b>Item List</b>
A	At least two of the following:		Overhead service line (three phase)* Overhead service line (single phase) Overhead service line (two phase) (* must do)
B	At least one of the following:		Service fuse Circuit breakers (pole) Service link
C	All of the following:		Polarity test * Phase rotation test Continuity test Voltage test (* must do)
D	At least one of the following:		Aluminium LV mains Copper LV mains LV ABC mains
E	At least one occasion		Dealing with an unplanned event by drawing essential knowledge and associated skills to provide appropriate solutions incorporate holistic assessment with the above listed



<b>Range of tools/equipment/materials/procedures/workplaces/other variables</b>			
<b>Group No</b>	<b>The minimum number of items on which skill is to be demonstrated</b>	<b>Item List</b>	
A	At least two of the following:	Overhead service line (three phase)* Overhead service line (single phase) Overhead service line (two phase) (* must do)	<a href="#">Lesson 5 AA Note 1 Assessment</a>
B	At least one of the following:	Service fuse Circuit breakers (pole) Service link	<a href="#">Lesson 6 AA Note 1 Assessment</a>
C	All of the following:	Polarity test * Phase rotation test Continuity test Voltage test (* must do)	<a href="#">2A Testing Skills Practice and Practical Assessment File</a>
D	At least one of the following:	Aluminium LV mains Copper LV mains LV ABC mains	<a href="#">Lesson 5 AA Note 1 Assessment</a>
E	At least one occasion	Dealing with an unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.	OHS

**Context of and specific resources for assessment 9.3)**

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual installation and maintenance of overhead LV services.

In addition to the resources listed above, in Context of and specific resources for assessment, evidence should show demonstrated competency working below ground, in limited spaces, with different structural/construction types and method and in a variety of environments.

**Method of assessment 9.4)**

This Competency Standard Unit shall be assessed by methods given in Volume 1, Part 3 “Assessment Guidelines”.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this Competency Standard Unit applies. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and associated skills described in this unit.

**Concurrent assessment and relationship with other units 9.5)**

There are no concurrent assessment recommendations for this unit.

## Range Statement

### RANGE STATEMENT

**10)** This relates to the unit of competency as a whole providing the range of contexts and conditions to which the Performance Criteria apply. It allows for different work environments and situations that will affect performance.

This Competency Standard Unit shall be demonstrated in relation to the installation and maintenance of overhead low voltage services as they relate to distribution circuits and associated equipment and includes the identification of faults.

Installation may include, the erection and connection of service lines, the fitting and connection of pole fuses or circuit breakers and the testing and commissioning of the service.

Maintenance may include the identification and diagnosis of faults, the removal, replacement or repair of service lines and associated hardware and the temporary installation of services and associated equipment and the testing and commissioning of the service.

Testing procedures may include continuity, polarity, phase rotation, insulation resistance and voltage.

Testing equipment may include, digital/analogue voltage testers, multimeters, phase rotation testers, load testers, insulation resistance and continuity testers.

Associated hardware may include pole fuse units, circuit breakers, contactors, mains connection boxes.

The following constants and variables included in the element/Performance Criteria in this unit are fully described in the Definitions Section 1 of this volume and form an integral part of the Range Statement of this unit:

- Appropriate and relevant persons (see Personnel)
- Appropriate authorities
- Appropriate work platform
- Assessing risk
- Assessment
- Authorisation
- Confined space
- Diagnostic, testing and restoration
- Documenting detail work events, record keeping and or storage of information
- Drawings and specifications
- Emergency
- Environmental and sustainable energy procedures
- Environmental legislation
- Environmental management documentation
- Established procedures

**RANGE STATEMENT**

- Fall prevention
- Hazards
- Identifying hazards
- Inspect
- Legislation
- MSDS
- Notification.
- OHS practices
- OHS issues
- Permits and/or permits to work
- Personnel
- Quality assurance systems
- Requirements
- Testing procedures
- Work clearance systems

**Unit Sector(s)**

Not applicable.

**Competency Field**

**Competency Field**            **11)**

Industry Specific Cross-Discipline Units