Australian Government

UEENEEP025A Attach cords, cables and plugs to electrical equipment for connection to 1000 Va.c. or 1500 Vd.c. supply

Release: 3

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

UEENEEP025A Attach cords, cables and plugs to electrical equipment for connection to 1000 Va.c. or 1500 Vd.c. supply

Modification History

Unit Descriptor

Unit Descriptor **1)**

1.1) Descriptor

This unit covers attaching flexible cords, cables and plugs to electrical equipment connected to a supply up to 1,000V a.c. or 1,500V d.c. This may be incidental to or a primary and regular function of work related to a principle function in the workplace. It encompasses working safely, identifying plug configurations, selecting and using testing and measuring devices, terminating and connecting flexible cords/plugs and conductors, safety testing and reporting.

Application of the Unit

Application of the Unit **4)**

This unit applies to any formal recognition for this standard at the aligned AQF 2 level or higher.

Licensing/Regulatory Information

1.2) License to practice

The skills and knowledge described in this unit may require a license to practice in the workplace. However, practice in this unit is subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Note:
Candidates are to meet regulator eligibility requirements by providing formal confirmation from the relevant state/territory regulator for the respective work class and scope of work prior to developing and being conferred competent.

Pre-Requisites

Prerequisite Unit(s) **2)**

2.1) Competencies

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

UEENEEP024A	Attach cords and plugs to electrical equipment for connection to a single phase 230 volt supply

Employability Skills Information

Employability Skills **3)**

This unit contains Employability Skills

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) 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 evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA	
1 Plan and prepare to attach flexible cord/cables(s) and plug(s).	1.1	Work is planned and prepared to ensure OHS policies and procedures are followed, and the work is appropriately sequenced in accordance with requirements.
	1.2	Condition and ratings under which the flexible cord/cable(s) and plug(s) are to operate is determined from requirements and in consultation with appropriate personnel followed by written instruction.
	1.3	Flexible cord/cable(s) and plug(s) are selected to comply with standards and requirements for the condition and rating to be determined.
	1.4	Materials necessary to complete the work are obtained in accordance with established procedures and checked against job requirements.

ELEMENT	PERFORMANCE CRITERIA	
	1.5	Tools, equipment and testing devices needed to carry out the work are obtained in accordance with established procedures and checked for correct operation and safety.
	1.6	Flexible cord/cable(s) is prepared without damage to insulation and conductors and in accordance with requirements.
2 Attach flexible cord(s)/cable(s) and plug(s).	2.1	OHS policies and procedures are followed.
	2.2	Single insulated metal framed equipment is earthed in accordance with requirements.
	2.3	The integrity of double insulated equipment is maintained in accordance with requirements.
	2.4	Conductors are connected to terminals in accordance with requirements to ensure the required polarity is affected.
3 Test equipment for operation and safety.	3.1	Appropriate tests of the cord/cable(s) and plug(s) connected to the electrical equipment are conducted in accordance with requirements and to established procedures to ensure safe installation and operation.
	3.2	Ongoing checks of the quality of work are undertaken in accordance with established procedures.
4 Locate and repair fault(s) in attached flexible cord(s) and plug(s).	4.1	Electrical equipment and attached flexible cord(s) and plug(s) are isolated, where necessary, in accordance with established procedures.
	4.2	Other OHS policies and procedures are followed.
	4.3	Visual checks of the attached flexible cord(s) and plug(s) are carried out in accordance with established procedures to detect any abnormal or obvious damage or fault.
	4.4	Fault(s) in attached flexible cord(s) and plug(s) are confirmed and components to be replaced are determined and details recorded in accordance with established procedures.
	4.5	Fault(s) in attached flexible cord(s) and plug(s) are repaired in accordance with established procedures,

ELEMENT	PERFORMANCE CRITERIA	
		where necessary.
	4.6	Approval is obtained in accordance with established procedures from appropriate personnel, before any contingencies are implemented.
5 Provide status report(s).	5.1	Status report(s) are completed and notified in accordance with established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Evidence shall show that knowledge has been acquired of safe working practices and attaching cords and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c. supply.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

.KS01-EP025A Flexible cords/cables and plugs to 1000 V

Evidence shall show an understanding of flexible cords/cables and plugs to 1000 V to an extent indicated by the following aspects

T1 Safety encompassing:

- OH&S and electrical safety requirements
- requirements of AS/NZS 4836:2001 Safe working practices on low voltage installations

T2 Selection of flexible cords/cables and plugs to suit given applications encompassing:

- multiphase systems
- structure of plug pin configuration
- applications of commonly used flexible cords/cables and plugs for connection to 1000 Va.c. or 1500 Vd.c. supply
- determining the current rating of a range of commonly used flexible cords/cables and plugs for connection to 1000 Va.c. or 1500 Vd.c. supply
- determining the number of cores /pins required for given situations
- multiphase colour code and the conventional code used in the most common cords/cables
- selecting flexible cords/cables for given multiphase loads to 1000 V and service

REQUIRED SKILLS AND KNOWLEDGE

duty.

- selecting multiphase plugs to 1000 V for a given load and IP rating.
- selecting the correct plug and socket combinations for a range of applications including use in damp areas

T3 Connect flexible cords/cables and plugs to multiphase equipment encompassing:

- design features of plugs and sockets which protect the conductor terminations from undue force when disconnecting a cord - tortuous path
- cord preparation - not to mark/damage the inner core when stripping the sheath for termination, double the end of the conductor to be terminated
- preparation of the surfaces at an earthing connection before and after completion of the termination including terminations exposed to corrosion, and those for which no specific earthing terminal is provided
- prepare flexible cords/cables for connection
- single insulated metal framed equipment is earthed in accordance with requirements or the integrity of double insulated equipment is maintained
- fitting a range of various multiphase flexible cords/cables, plugs, and sockets with attention to tortuous path requirements, colour code, polarity, and correct termination of conductors with the sheath well into the body, and the cord grip anchored

T4 Determine that a flexible cord/cable and plug is safe and is connected correctly encompassing:

- importance of conducting both visual and electrical tests to ensure leads are safe and appropriate for connection to supply in regard to physical condition, sufficiently high insulation resistance, continuity, arrangements for protection against indirect contact are undamaged and in place, appropriate IP rating, and arrangements for protection against dangers of mechanical movement as relevant are undamaged and in place
- check polarity of plug, and for any abnormal or obvious damage or fault
- minimum acceptable value of insulation resistance between actives, neutral and earth
- conduct insulation resistance and continuity tests prior to, and after, connecting cords/cables and plugs to appliances
- fault finding attached multiphase flexible cords/cables and plugs, and multiphase cord extension leads

T5 Producing documentation and reports encompassing:

- nature and content of, and the need to produce, status reports and documents
- producing status reports and documents

Evidence Guide

EVIDENCE GUIDE

9) 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 for this Training Package.

The Evidence Guide forms an integral part of this Unit and shall be used in conjunction with all components parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. In some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety issues inherent in working with electricity, electrical equipment, gas or any other hazardous substance/material present a challenge for those determining competence. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work influence decisions about how/how much the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

Critical aspects of

9.2)

EVIDENCE GUIDE

evidence required to demonstrate competency in this unit

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines - UEE07'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
  - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the performance criteria and range statement
  - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
  - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements. Demonstrate an appropriate level of skills enabling employment
  - Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
  - Attach cords and plugs to electrical equipment for connection to 1000 V a.c. or 1500 Vd.c. supply as described in 8) and including:

A Demonstrating consistent performance for each element of the unit

B Meeting the performance criteria associated with each element of competence by employing the techniques, procedures, information and resources available in the workplace

C Demonstrating an understanding of the underpinning knowledge and skills shown in the Essential

EVIDENCE GUIDE

Knowledge and Associated Skills section of the unit

D Planning and preparing to attach flexible cords/cables and plugs up to 1,000V a.c. to 1,500V d.c.

E Replacing and repairing flexible cords/cables and plugs up to 1,000V a.c. to 1,500V d.c

F Attaching, replacing and repairing flexible cords/cables, plugs to equipment for operation, safely up to 1,000V a.c. to 1,500V d.c

G Testing flexible cords/cables, plugs and equipment for operation and safety up to 1,000V a.c. to 1,500V d.c

H Finding and repairing fault(s) in attached flexible cords/cables and plugs in accordance with established procedures

I Providing status report(s)

J Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in a holistic assessment with the above listed items

Note:
Successful completion of relevant vendor training may be used to contribute to evidence on which competency is deemed. In these cases the alignment of outcomes of vendor training with performance criteria and critical aspects of evidence shall be clearly identified

EVIDENCE GUIDE

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 work as prescribed by this unit.
- Workplace evidence to be produced in an industry/regulator approved recording system (logbook) confirming skills development under appropriate supervision

These should be part of the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to attaching cords and plugs to electrical equipment for connection to 1000 V a.c. or 1500 Vd.c. supply.

Method of assessment

9.4)

This 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 unit applies. This requires assessment in a structured environment which is intended primarily for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and relationship with other units

9.5)

For optimisation of training and assessment effort, competency development in this unit may be arranged concurrently with unit:

UEENEEP024A	Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply

Range Statement

RANGE STATEMENT

8) This relates to the unit 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 unit shall/may be demonstrated in relation to any cord/cable and plug connected equipment or cord/cable extension leads intended for multi phase supplies up to 1,000V a.c. to 1,500V d.c.

Note:

Limitations of this unit. This unit does not cover the knowledge and skills necessary for work:

a) Competencies associated with high current faults

b) On complex electrical apparatus, circuits and electrical work

c) In hazardous areas or on electrical equipment that is part of an explosion protection technique

d) Nor competencies associated with fixed wiring.

Safe Working. Safe procedures for working within in the scope of this unit shall be in accordance with AS/NZS 4836:2001 'Safe working on low-voltage electrical installations.'

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not Applicable

Custom Content Section

2.2) Literacy and numeracy skills

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading	3	Writing	3	Numeracy	3

Competency Field

Competency Field **5)**

Restricted and Specialisations