



Australian Government

UEENEEE121A Plan an integrated cabling installation system

Release: 2

UEENEEE121A Plan an integrated cabling installation system

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers the planning of cable routes for intelligent power and lighting, information and communications, entertainment systems, distributed video and audio; energy management and control; security and safety; digital home health; age and assisted living;.. This unit encompasses determining immediate and future cabling needs of an installation and their origins and termination points, planning cable routes, specifying cable types, sizes, fixing/support methods and cable identification systems and documenting cabling plans based on calculated and/or deemed-to-comply solutions as well as the planning of the wiring hub if required.

Application of the Unit

Application of the Unit 2)

This unit is intended as an additional competency to relevant competencies previously acquired. It is suitable for employment-based programs under an approved contract of training at the aligned AQF 3 level or higher.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit do not require a license to practice in the workplace. However practice in this unit is subject to regulations directly

License to practice**3)**

related to occupational health and safety and contracts of training such as new apprenticeships.

Pre-Requisites**Prerequisite Unit(s)****4)****Competencies****4.1)**

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

UEENEEE1 01A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEEE1 02A Fabricate, assemble and dismantle utilities industry components

UEENEEE1 05A Fix and secure electrotechnology equipment

UEENEEE1 07A Use drawings, diagrams, schedules, standards, codes and specifications

AND

UEENEEE1 08A Lay wiring/cabling and terminate accessories for extra-low voltage (ELV) circuits

OR

UEENEEG1 06A Terminate cables, cords and accessories for low voltage circuits

Literacy and numeracy skills**4.2)**

Participants are best equipped to achieve competency in 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 4 Writing 4 Numeracy 4

Employability Skills Information

Employability Skills 5)

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 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 Determine immediate and future cabling needs.	1.1 OHS risk control measures and procedures for carrying out the work are followed.
	1.2 Work supervisor or customers are consulted to determine immediate and future services required.
	1.3 Immediate and future location of service items and accessories is determined and written confirmation sought from appropriate persons.
	1.4 Safety and other regulatory requirements to which the installation shall comply are obtained and understood.

ELEMENT	PERFORMANCE CRITERIA
2 Plan an integrate cabling system for immediate and future services	2.1 Types and sizes of cables required for the various services are chosen to comply with technical standards, coded and regulations.
	2.2 Cables are arranged into circuits to ensure safe and functional operation of the services for which they are intended and to comply with technical standards, coded, regulations and budgetary restraints.
	2.3 Cabling for protective and functional earthing arrangements is determined to comply with technical standards, coded and regulations.
	2.4 Cabling routes are planned and cable support and methods for protection against damage specified to ensure compliance with technical standards, coded and regulations.
	2.5 Cable identification scheme is development to aid installation of services.
	2.6 Methods of terminating cables intended for future services are specified to ensure compliance with technical standards, coded and regulations.
3 Document the integrated cabling plan	3.1 Types and sizes of cables chosen, together with supporting justification, are documented in accordance with established procedures.
	3.2 Cable routes and cable support and methods for protection against damage are documented in accordance with established procedures.
	3.3 Cable identification scheme and methods of terminating cables intended for future services are documented in accordance with established procedures.
	3.4 Acceptance of the integrated cabling plan is sought from appropriate persons.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) 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 planning integrated cabling installations.

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

KS01-EE121A

Planning integrated cabling installations

Evidence shall show an understanding of integrated cabling systems to an extent indicated by the following aspects:

T1 Overview of relevant residential systems encompassing:

- information and communications
- entertainment
- energy management
- security and safety
- digital home health
- age and assisted living
- intelligent lighting and power

T2 Information and communications system encompassing:

- computing
- home video conferencing
- intercoms
- telephony

T3 Entertainment encompassing:

- distributed audio and video
- free-to-air TV and HDTV
- home theatre
- pay TV

T4 Energy management encompassing:

- controllable blinds
- controllable lighting and appliances
- electric vehicles
- manage energy use of key appliances

T5 Security and safety encompassing:

- automatic access control
- electronic monitoring
- fire safety

REQUIRED SKILLS AND KNOWLEDGE

T6 Digital home health encompassing:

- monitoring devices
- video conferencing

T7 Age and assisted living encompassing:

- alert systems
- panic buttons
- intercom
- video cam

T8 Intelligent lighting and power encompassing:

- controlled heating and lighting
- power outlets
- lamps (fluoro and LED)
- smart appliances
- specialised sensors
- specialised telephony

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. It must be used in conjunction with all parts of the 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. It is recognised that,

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 nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work have a bearing on the decision as to how much and how detailed 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 evidence
required to
demonstrate
competency in
this unit**

9.2)

Before the critical aspects of evidence are considered all prerequisites must 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 – UEE11'. 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, policies and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Plan integrated cabling installations as described in 8) and including:

- | | |
|---|--|
| A | Determining immediate and future cabling needs accurately. |
| B | Choosing appropriate type and size of cables for the immediate and future services. |
| C | Planning cable routes and specifying effective support and protection method. |
| D | Developing effective cable identification scheme. |
| E | Specifying compliant termination methods for cables intended for future use. |
| F | Documenting cabling plan including supporting justification. |
| G | 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. |

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 in this unit.

These should be used in the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions for assessment 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 planning integrated cabling installations.

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 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 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:

UEENEE10 Use computer applications relevant to a workplace
1A

Range Statement

RANGE STATEMENT

10) 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 be demonstrated in relation to planning two integrated cabling installations for at least four of the following services.

- Intelligent electrical power and lighting
- Fixed home entertainment systems
- Integrated energy management system
- Security and safety system
- Climate control system
- Renewable energy systems
- Water management system
- information and communications
- digital home health
- age and assisted living

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.

Competency Field

Competency Field	11)
	Electrotechnology