



Australian Government

UEEIC0023 Install instrumentation and control cabling and tubing

Release: 1

UEEIC0023 Install instrumentation and control cabling and tubing

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to install instrumentation and control cabling and tubing.

It includes identifying and installing cabling, tubing and accessories. It also includes completing and reporting installation activities, routing cables and tubing to specified locations, terminating cables and tubing, and connecting wiring at accessories, instruments and control apparatus.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, is required.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEIC0047 Use instrumentation drawings, specifications, standards and equipment manuals

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Identify cabling and tubing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** WHS/OHS requirements and workplace procedures are identified and applied
- 1.2** Hazards are identified, risks are assessed and control measures implemented
- 1.3** Safety hazards not previously identified are reported on job safety assessment and advice on risk control measures are implemented
- 1.4** Installation of cabling and tubing is prepared in consultation with relevant person/s and scheduled in accordance with workplace procedures
- 1.5** Nature and location of work is determined from documentation and/or relevant person/s to determine scope of work
- 1.6** Cable and tube routes are planned within constraints of building, plant structure, significant and regulations
- 1.7** Advice is sought from appropriate person/s to ensure work is coordinated effectively with others
- 1.8** Material needed for installation work is obtained in accordance with workplace procedures and checked against job requirements
- 1.9** Tools, equipment and testing devices needed for work are obtained in accordance with workplace procedures and checked for correct operation and safety
- 1.10** Work is checked by supervisor to ensure and work complies with job requirements

2 Install cabling, tubing and accessories

- 2.1** WHS/OHS risk control measures and procedures for carrying out the work are followed
- 2.2** Plant/machines/equipment are checked and isolated in accordance with workplace procedures
- 2.3** Cabling, tubing and accessories are installed to comply with technical standards, job specifications and work

requirements with sufficient excess to affect terminations

- 2.4 Accessories are installed in required locations within acceptable tolerances
 - 2.5 Cables and conductors are terminated at accessories in accordance with manufacturer specifications and regulatory requirements
 - 2.6 Tubing is terminated at accessories in accordance with manufacturer specifications and regulatory requirements
 - 2.7 Methods for dealing with unplanned situations are discussed with relevant person/s and documented
 - 2.8 Unplanned situations are responded to in accordance with workplace procedures and approval of authorised person/s
 - 2.9 Ongoing quality checks of installed wiring is undertaken in accordance with workplace procedures
 - 2.10 Cabling and tubing installations are performed using sustainable energy principles without wasting materials and energy, damaging apparatus or surrounding environment in accordance with workplace procedures
- 3 Complete and report installation activities**
- 3.1 WHS/OHS work completion risk control measures and procedures are followed
 - 3.2 Worksite is cleaned and made safe in accordance with workplace procedures
 - 3.3 Final checks are made to ensure installed wiring conforms to requirements
 - 3.4 'As-installed' cables, tubes and accessories are documented and relevant person/s notified in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

- Wiring and tubing must include the following:
- at least three wiring systems:
 - armoured cable
 - fire performance cables
 - thermoplastic insulated (TPI) cable
 - thermoplastic sheathed (TPS) cable
 - unshielded twisted pair (UTP), foiled twisted pair (FTP), shielded twisted pair (STP) and coaxial communications cables
 - at least two tubing types:
 - low pressure metallic and non-metallic tubing
 - high pressure tubing

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI107A Install instrumentation and control cabling and tubing.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEEIC0023 Install instrumentation and control cabling and tubing

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- acquiring relevant materials, tools, equipment and testing devices
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including identifying risk control measures
- applying sustainable energy principles and practices
- checking installed wiring is compliant
- communicating and dealing with other person/s when scheduling and planning work
- completing and reporting installation activities
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- identifying and installing cabling, tubing and accessories
- placing and securing accessories in accordance to specified drawings
- routing, placing and securing cables and tubing to comply with requirements
- terminating cables and tubing to comply with requirements.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- instrumentation cable types and terminations, including:
 - cable specifications
 - cable applications
 - cable preparation
 - cable termination
 - connection hardware
- instrumentation pneumatic/hydraulic control tubing/piping, including:
 - control tubing/piping
 - pneumatic/hydraulic terms

- cutting pipe tubing/piping
- bending, shaping/setting pipe and tubing
- joining connecting/terminating tubing/ piping
- instrumentation air supply maintenance
- job safety assessments or risk mitigation processes, including risk control measures
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- sustainable energy principles and practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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