



Australian Government

UEEIC0048 Verify compliance and functionality of instrumentation and control installations

Release: 1

UEEIC0048 Verify compliance and functionality of instrumentation and control installations

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 verify compliance and functionality of instrumentation and control installations.

It includes preparing and conducting inspections and testing the instrumentation and control installation. It also includes reporting instrumentation and control inspection and test results.

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, skills and knowledge described in this unit require a relevant contract of training, such as an Australian Apprenticeship.

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.

Permits may also be required for some work environments, such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

No other licensing, legislative or certification requirements apply to this unit at the time of publication.

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

UEEIC0041 Solve problems in pressure measurement components and systems

UEEIC0038 Solve problems in density/level measurement components and systems

UEEIC0039 Solve problems in flow measurement components and systems

UEEIC0043 Solve problems in temperature measurement components and systems

UEEIC0029 Set up and adjust PID control loops

UEEIC0030 Set up and adjust advanced PID process control loops

UEEIC0031 Set up and configure human-machine interface (HMI) and industrial networks and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to inspect and test instrumentation and control installation

PERFORMANCE CRITERIA

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

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| 1.1 | WHS/OHS measures for the site are identified, obtained and understood |
| 1.2 | WHS/OHS risk control measures and workplace procedures are followed in preparation for work |
| 1.3 | Safety hazards not previously identified are noted and risk control measures implemented |
| 1.4 | Documentation of installation is reviewed and implemented in accordance with relevant industry standards |
| 1.5 | Relevant person/s is consulted to ensure work is coordinated effectively with others involved on worksite |
| 1.6 | Tools, equipment and testing devices are checked for correct operation and safety in accordance with workplace procedures and relevant industry standards |

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| | 1.7 | Preparatory work is checked to ensure no damage has occurred and work is in accordance with relevant industry standards |
| 2 Visually inspect instrumentation and control installation | 2.1 | WHS/OHS risk control measures and workplace procedures for carrying out the work are followed |
| | 2.2 | Need to visually inspect, test and measure live work is determined in accordance with WHS/OHS requirements and workplace procedures |
| | 2.3 | Circuits/machines/plant are checked and isolated in accordance with WHS/OHS requirements and workplace procedures |
| | 2.4 | Instrument cabling and tubing are checked for suitability of the environments to be installed and protected from damage in accordance with workplace procedures |
| | 2.5 | Type, configuration/sizing of instrument cabling and tubing is confirmed for the installation in accordance with relevant industry standards and workplace procedures |
| | 2.6 | Control apparatus and installation requirements are cited in accordance with WHS/OHS requirements and relevant industry standards |
| | 2.7 | Marking of control apparatus is checked for accuracy and clarity in accordance with relevant industry standards |
| 3 Conduct functional and safety testing | 3.1 | WHS/OHS risk control measures and workplace procedures for carrying out the work are followed |
| | 3.2 | Need to test and measure live work is determined in accordance with WHS/OHS requirements and workplace procedures |
| | 3.3 | Circuits/machines/plant are checked and isolated in accordance with WHS/OHS requirements and workplace procedures |
| | 3.4 | Process control apparatus is operated at low voltage (LV) arrangements to conduct and report on electrical safety tests in accordance with WHS/OHS requirements and workplace procedures |

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| | 3.5 | Insulation and continuity tests are conducted on process control cabling operating at extra-low voltage (ELV) in accordance with WHS/OHS requirements and workplace procedures |
| | 3.6 | Process control tubing/piping is pressure tested in accordance with WHS/OHS requirements and workplace procedures |
| | 3.7 | Functional inspections and tests are conducted on process control apparatus in accordance with workplace procedures and relevant industry standards |
| 4 Report instrumentation and control inspection and test findings | 4.1 | WHS/OHS risk control work completion measures and workplace procedures are followed |
| | 4.2 | Worksite is cleaned and made safe in accordance with workplace procedures |
| | 4.3 | Non-compliance defects are identified and reported in accordance with workplace procedures |
| | 4.4 | Recommendations for rectifying defects are made in accordance with workplace procedures |
| | 4.5 | Verification documentation is completed 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.

Verifying compliance and functionality must include the following:

- at least one electrical/electronic installation
- at least one pneumatic process control installation comprising of:
 - a measuring transmitter
 - controller

- final control element
- indicator
- cabling/tubing

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI112A Verify compliance and functionality of instrumentation and control installations.

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 UEEIC0048 Verify compliance and functionality of instrumentation and control installations

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:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including
 - using risk control measures
- checking accuracy and clarity of control apparatus marking
- checking and isolating circuits/machines/plant
- checking for correct operation of tools, equipment and testing devices
- checking instrument cabling and tubing for non-compliance defects
- checking preparatory work to ensure no damage has occurred and work is in accordance with relevant industry standards
- completing verification documentation
- confirming instrument cabling and tubing, type and configuration/sizing for installation
- identifying defects of non-compliance and recommending rectifying defects
- identifying non-compliance results
- preparing instrumentation and control installations
- reviewing control apparatus and installation requirements
- testing and measuring live circuits
- using effective methods for conducting inspections and tests
- visually inspecting instrumentation and control installation.

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:

- problem-solving techniques
- relevant circuits/machines/plant
- relevant control installations to industry standards
- relevant inspection and test methods

- relevant inspection, test and measurement methods for live work
- relevant instrument cabling and tubing for installation
- relevant isolation procedures
- relevant manufacturer specifications and operating instructions
- relevant job safety assessments or risk mitigation processes
- relevant tools, equipment and testing devices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation, including
 - verification and compliance industry standards
- relevant workplace instructions, policies and procedures.

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 suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable 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 simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to verifying compliance and functionality of process control installations
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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