



Australian Government

UEEEEC0063 Solve fundamental electronic communications system problems

Release: 1

UEEEEC0063 Solve fundamental electronic communications system problems

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 solve fundamental electronic communications system problems.

It includes ascertaining correct operation of communications system and solving fundamental system problems as met in engineering support work functions. It also includes working safely, applying problem-solving techniques, using a range of measuring devices, and providing solutions derived from measurements to predictable problems in an electronic communications system.

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

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

Pre-requisite Unit

UEEEEC0066 Troubleshoot amplifiers in an electronic apparatus

Competency Field

Electronics and Communications

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

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| 1 Prepare to solve fundamental problems in electronic communications system | 1.1 Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified and applied |
| | 1.2 WHS/OHS risk control measures and workplace procedures are followed in preparation for electronic communications system work |
| | 1.3 Safety hazards not previously identified are risk assessed, noted on job safety assessments and established risk control measures implemented |
| | 1.4 Nature of the communications system problem is obtained from documentation or from work supervisor to determine the scope of work to be undertaken |
| | 1.5 Advice is sought from work supervisor to ensure the work is coordinated effectively with others |
| | 1.6 Tools, testing devices and materials needed to carry out the electronic work are obtained and checked for correct operation and safety |
| 2 Solve fundamental problems in electronic communications system | 2.1 WHS/OHS risk control measures and workplace procedures for carrying out the electronic work are followed |
| | 2.2 Need to test and measure live work is determined in accordance with WHS/OHS requirements and workplace safety procedures |
| | 2.3 Circuits/machines/plant are checked and isolated in accordance with WHS/OHS requirements and workplace procedures |
| | 2.4 Fundamental of communication system characteristics, components and transmission media is applied to resolving system problem/s |
| | 2.5 Logical approaches are used to solve system problems from measured and calculated values as they apply to communication system configuration |
| | 2.6 Unplanned situations are dealt with safely and with the approval of authorised person/s in accordance with workplace procedures in a manner that minimises risk to personnel and equipment |

	2.7	Electronic problems are resolved without unnecessary damage to apparatus, circuits, the surrounding environment or services using sustainable energy practices
3 Complete electronic work and document problem-solving activities	3.1	WHS/OHS risk control work completion measures and workplace procedures are followed
	3.2	Worksite is cleaned and made safe in accordance with workplace procedures
	3.3	Reports are written outlining electronic system problem and justifying solutions used

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.

Unit Mapping Information

This unit replaces and is equivalent to UEENEEH146A Solve fundamental electronic communications system problems.

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 UEEEC0063 Solve fundamental electronic communications system problems

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 and performance criteria on at least two separate occasions and include:

- applying fundamental knowledge of communication system characteristics, components and transmission media to resolving system problems
- applying measured values in verifying system operation and determining any corrective actions required
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- providing written justification for solutions used
- solving predictable system problems
- using logical and methodical approaches to solving system problems
- using test equipment to measure communication system parameters and modulated signal characteristics.

Knowledge Evidence

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

- analogue and digital modulation applications
- communications system principles
- notion and application of the decibel ratio (dB)
- optical communications system elements and transmission media characteristics
- principles of amplitude based (AM), frequency based (FM) and phase based (PM) modulation
- radio spectrum fundamentals, including signal and noise considerations
- radio frequency (RF) communications system elements and basic antenna principles
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements

- relevant workplace documentation
- relevant workplace policies and procedure
- safety considerations for optical and RF communications systems.

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 suitable 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 simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to solving fundamental problems in electronic communications systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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