



Australian Government

UEEEEC0001 Analyse the performance of wireless-based electronic communication systems

Release: 1

UEEEEC0001 Analyse the performance of wireless-based electronic communication systems

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 analyse the performance of wireless-based electronic communication system.

This includes analysis of wireless-based electronic systems to provide solutions to mobile communications performance. It encompasses working safely, applying extensive knowledge of mobile communications parameters, gathering and analysing data, applying problem-solving techniques, and developing and documenting results and solutions for use in design work.

No 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

Competency Field

Electronics and Communications

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to analyse the performance of wireless-based system

PERFORMANCE CRITERIA

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

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

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| | 1.2 | WHS/OHS risk control measures and workplace procedures are followed in preparation for the work |
| | 1.3 | Extent of the wireless-based electronic system issues are determined from performance specifications, situation reports and in consultation with relevant person/s |
| | 1.4 | Work activities are planned to meet scheduled timelines in consultation with other person/s involved in the work |
| | 1.5 | Effective strategies are formed to ensure solution development and implementation is carried out efficiently |
| 2 Analyse the wireless-based electronic system performance | 2.1 | WHS/OHS risk control measures and workplace procedures for carrying out work activities are followed |
| | 2.2 | Wireless communications principles are applied to analytical solutions to electronic systems |
| | 2.3 | Parameters, specifications and performance requirements in relation to wireless-based electronic systems are obtained in accordance with workplace procedures |
| | 2.4 | Approaches to analysing wireless-based electronic system parameters are carried out to provide the most effective solution |
| | 2.5 | Unplanned events are dealt with safely and effectively consistent with regulatory requirements and enterprise policies |
| | 2.6 | Quality of work is monitored against personal performance agreement and/or established organisational or professional standards |
| 3 Document and report results of wireless-based electronic system performance analysis and actions taken | 3.1 | Solutions to wireless-based electronic system issues are evaluated to determine their effectiveness and modified, as required |
| | 3.2 | Analysis is documented, including details of all findings, calculations and assumptions |
| | 3.3 | Analysis is reported to appropriate person/s to establish appropriate action to be taken based on findings |

- 3.4** Justification for findings and any actions to be undertaken in relation to the equipment is documented for inclusion in work/project or development records in accordance with professional standards

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.

Analysing performance of wireless-based electronic systems must include at least the following:

- two wireless-based electronic systems in at least two different contexts

Unit Mapping Information

This unit replaces and is equivalent to UEENEEH183A Analyse the performance of wireless-based electronic - communication systems.

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 UEEEC0001 Analyse the performance of wireless-based electronic communication systems

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:

- analysing wireless-based electronic system performance
- applying sustainable energy principles and practices
- dealing with unplanned situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- determining effective strategies for analysing wireless-based electronic system performance
- determining wireless-based electronic systems performance issues
- documenting analysis details of all findings, calculations and assumptions
- documenting justification of actions to be implemented in accordance with professional standards
- evaluating results of wireless-based electronic communication system analysis
- implementing relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements, workplace procedures and practices, including the use of risk control measures
- obtaining wireless-based electronic systems performance parameters, specifications and performance requirements appropriate to each situation.

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:

- fundamentals of wireless security, including:
 - access points
 - antennas
 - application design and site survey preparation
 - bridges
 - emerging technologies
 - network interface cards (NICs)

- security
- troubleshooting, management, monitoring and diagnostics
- wireless topologies
- networking fundamentals, including:
 - encoding networking signals
 - how information is carried
 - internet services
 - local area network (LAN) architectures
 - network signal propagation
 - networking protocols and the open systems interconnection (OSI) model
 - signal distortion, including attenuation, reflection, noise, dispersion, jitter, latency and collisions, and bit error rate
 - transmission control protocol (TCP)/internet protocol (IP)
 - types of networks, network components and hardware
- relevant industry standards, codes of practice and regulations of Australian Communications and Media Authority (ACMA)
- relevant risk mitigation processes
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- wireless-based electronic communications system performance, principles and practices
- wireless networks infrastructure, including network configurations and wireless network security.

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, equipment and personal protective equipment (PPE) currently used in industry

- resources that reflect current industry practices in relation to analysing the performance of wireless-based electronic systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

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