



Australian Government

Assessment Requirements for UEEEC0018

Develop engineering solutions to audio electronic problems

Release: 1

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Modification History

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

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 one occasion and include:

- understanding the extent of the audio electronic problem
- forming effective strategies for solution development and implementation
- obtaining audio electronic parameters, specifications and performance requirements appropriate to each problem
- testing and solutions to audio electronic problems
- documenting instruction for implementation of solutions that incorporate risk control measure to be followed
- documenting justification of solutions implemented in accordance with professional standards
- dealing with unplanned events
- 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.

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:

- audio electronics engineering solutions, safe working practices and relevant standards, codes and regulations, including:
 - acoustics, spatial treatment and sound reproduction:
 - effects of room dimensions, spatial shape and surface textures on acoustics
 - ideal acoustic for specific purposes - speech, solo or small group music, rock music, orchestral music, choral music and cinema
 - measuring room response
 - speaker placement and room response
 - room treatment methods to improve acoustic response

- active methods to improve acoustic response
- audio reproduction and electronic components:
 - preamplifiers amplifier encompassing:
 - function in the reproduction chain
 - typical circuit arrangements
 - power and integrated amplifiers encompassing:
 - function in the reproduction chain
 - typical circuit arrangements
 - graphic equalizers encompassing:
 - function in the reproduction chain
 - typical circuit arrangements
 - component interconnections
- advanced electronic testing and measuring devices and techniques:
 - test/measuring devices and their application - frequency counters, and synthesisers, spectrum analysers, noise and distortion meters and radio frequency (RF) communications service monitor
 - connection of test/measuring devices into a circuit encompassing:
 - safety procedures
 - loading and matching
 - storage and delay
 - circuit arrangement of test/measuring devices
 - taking and interpreting readings
 - notion of decibels, including dBm, dBr, dBu and dBo
- audio system advanced diagnostic techniques:
 - perception and measurement of sound
 - acoustics and equalisation
 - sound recording and reproduction technologies
- audio component testing, measurements and adjustments - frequency response for given loads, small signal test, distortion measurement, noise measurement, frequency versus distortion, intermodulation spectrum, spectral-decay plots, acoustic cross-over, anechoic response, lateral and vertical response
- engineering principles
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace 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 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 other 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 developing solutions to audio electronic problems
- 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>