



Australian Government

Assessment Requirements for MEM23124 Measure and analyse noise and vibration

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM23124A Measure and analyse noise and vibration.

Performance Evidence

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

- determining compliance with work health and safety (WHS), regulatory and risk management requirements with an emphasis on automation safety
- reviewing the physics of sound and vibration, effects of noise, vibration and shock on humans
- determining measuring equipment and options for mitigation measures
- identifying noise and vibration, noise dose and vibration exposure limits
- selecting appropriate measuring equipment for measuring task
- calibrating, siting and setting up equipment prior to use
- measuring and recording noise and vibration on at least two occasions
- analysing and interpreting measurement results
- relating data to plant and equipment performance
- recommending noise and vibration elimination, mitigation and protection measures on at least two occasions
- applying systems thinking, continuous improvement, problem-solving, constraint and contingency management
- investigating sustainability implications, developments in acoustic, vibration and shock measurement, and condition monitoring in predictive maintenance programs
- reporting and documenting results of reviews, measurement, data, analysis, calculations, interpretations and recommendations.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

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

- characteristics and measurement of noise and vibration, and sources of noise and vibration
- purpose of noise and vibration measurement
- noise and vibration concepts and terminology
- International Standards Organisation (ISO) and other vibration severity standards
- limitations of broadband vibration and trend analysis

- principles of using vibration analysis as an indicator of machine and equipment condition
- causes and effects of vibration and noise in industrial and commercial equipment, including damaged product, limited processing speeds and catastrophic machine failure
- typical engineering components subject to vibration
- relevant WHS and regulatory requirements, codes of practice, standards, risk minimisation and registration requirements
- calculations, formulae and laws relating to vibration and sound measurement, including allowable exposure using AS 2670.1 Evaluation of human exposure to whole-body vibration, Part 1: General requirements
- range and capacity of equipment for measuring vibration and sound
- noise measurement and testing techniques and equipment for different environments and sound characteristics in vibration measurement and testing
- acoustic emission in vibration measurement and testing
- shock testing, including applications requiring laboratory testing
- vibration trend analysis
- noise and vibration concepts including vibration, noise, transmission of noise and vibration and harmonic excitation
- common sources of noise generation
- noise mitigation and protection measures including:
 - isolation
 - insulation
 - personal hearing protection
 - exposure limitation policies
- vibration and shock control equipment and techniques
- community noise
- noise and vibration measurement and analysis applications including:
 - condition monitoring for plant
 - acoustic emissions for fault detection
 - modal analysis of dynamic properties of structures or room acoustics
 - correlation of modal analysis with finite element analysis (FEA)
 - statistical energy analysis
- safe work practices and procedures and use and application of personal protective equipment (PPE)
- hazards and control measures associated with measuring and analysing noise and vibration, including housekeeping.
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Assessment Conditions

- Assessors must:
 - have vocational competency in measuring and analysing noise and vibration at least to the level being assessed with relevant industry knowledge and experience

- satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015 or its replacement* and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- 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.
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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>