



Australian Government

MEM24031 Establish procedures for non-destructive tests

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Modification History

Release	Comments
1	This unit of competency was first released in MEM Manufacturing and Engineering Release 5.0.

Application

This unit of competency defines the skills and knowledge required to assess whether existing non-destructive (NDT) test methods and/or techniques are suitable for a specific application. The assessment of NDT test applications can include researching, documenting, arranging approval for and evaluating test procedures for performing NDT techniques. It may also include developing new procedures, or adapting/modifying existing procedures, for an NDT technique to take account of different test equipment or product operating conditions.

Procedures are established for NDT tests to be performed on critical components or structural zones. Personnel are required to consider actual and potential defects together with ongoing abnormalities in fabrications, critical components, structures and/or aircraft components.

This unit of competency applies to non-destructive testing (NDT) level 3 technicians working in manufacturing, engineering, aerospace and associated industry sectors. These employees work under the general supervision of personnel such as engineering associates, professional engineers and scientists; engineering technologists; and production, operations and maintenance managers.

Where reading and interpretation of technical drawings is required unit MEM09229 Read and interpret technical drawings should also be selected.

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of hand tools are required unit MEM18001 Use hand tools should also be selected.

Where the selection and use of power tools are required unit MEM18002 Use power tools/hand held operations should also be selected.

Band: B

Unit Weight: 12

Licensing/Regulatory Information

Assessment as competent against MEM24031 Establish procedures for non-destructive tests may contribute to certification against the Australian NDT standards where assessment of this unit of competency is carried out in conjunction with an examining authority as described in AS ISO 9712 NDT – Qualification and certification of personnel, or subsequent Standards.

Pre-requisite unit(s)

MEM13018 Work safely with ionizing radiation

MEM24022 Undertake penetrant tests

MEM24024 Undertake magnetic particle tests

MEM24026 Undertake eddy current tests

MEM24028 Undertake ultrasonic tests

MEM24030 Undertake radiographic tests

MEM24039 Apply materials technology principles to non-destructive testing

MEM30007 Select common engineering materials

Competency field(s)

Non-destructive testing

Unit sector(s)

N/A

Elements and Performance Criteria

Elements	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Establish job requirements	1.1 Determine relevant WHS and regulatory requirements, codes of practice, standards and risk assessment for testing 1.2 Identify job requirements from specifications, drawings, job sheets or work instructions
2. Assess testing requirements and evaluate options	2.1 Assess inspection area for testing and identify all possible failure sites using materials analysis techniques 2.2 Collect relevant information about previous and current NDT testing 2.3 Analyse available information to assess suitability of existing NDT tests and procedures and the advantages/limitations of possible alternatives 2.4 Determine if a new, adapted, or modified NDT test strategy is required
3. Recommend NDT test procedures	3.1 Select appropriate NDT methods, techniques and/or procedures to meet job requirements in accordance with relevant

	codes, standards, specifications and standard operating procedures (SOPs) 3.2 Identify any changes to SOPs required prior to implementation of selected methods, techniques and/or procedures 3.3 Recommend the most appropriate NDT methods, techniques and/or procedures and seek authorisation to proceed
4. Establish valid NDT test procedures	4.1 Establish NDT test procedures and in accordance with authorisation SOPs and materials technology principles 4.2 Conduct trial tests/inspections to verify the performance of proposed test procedures 4.3 Interpret and evaluate test/inspection results using relevant codes, standards and specifications 4.4 Document all safety, preparation, testing, data processing and reporting requirements in test procedures 4.5 Submit all documentation to appropriate personnel for review and approval 4.6 Distribute approved NDT procedures in accordance with SOPs, relevant codes and standards 4.7 Provide guidance to other NDT personnel where required
5. Evaluate NDT procedures	5.1 Evaluate approved NDT procedures for their effectiveness 5.2 Document and report evaluation results according to SOPs 5.3 Make approved changes/amendments to NDT procedures and distribute as necessary

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.	
Relevant information about previous and current NDT testing	• previous test results and their quality • use of current NDT test methods and techniques

includes one (1) or more of the following:	• NDT equipment and procedures for use • possible alternative to NDT testing.
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Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
MEM24031 Establish procedures for non-destructive tests	MEM24011 Establish non-destructive tests	Superseded	Equivalent

Assessment Requirements for MEM24031 Establish procedures for non-destructive tests

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria for establishing NDT test procedures on at least three (3) occasions and include:

- following work instructions, SOPs and safe work practices
- interpreting and applying relevant processes, testing and conformance standards, safety procedures and legislative requirements for establishing NDT procedures
- assessing inspection areas for testing in accordance with accepted NDT and materials analysis techniques and procedures
- accurately determining NDT test requirements for a specific application
- determining the most appropriate NDT method, technique or procedure for a specific application
- conducting trials and evaluating test results to verify the performance of new NDT procedures in accordance with relevant codes, standards and specifications
- evaluating new NDT procedures and making changes/amendments and distributing approved documents as necessary
- documenting evaluation results in accordance with SOPs.

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:

- concepts and principles of NDT methods, techniques and test procedures
- NDT equipment, products/materials used in job role
- requirements of all applicable industry standards, national/Australian standards, Safe Work Australia guidelines, State/Territory regulatory codes of practice/standards relevant to NDT tests used in job role
- application of materials analysis techniques to assess NDT inspection areas
- processes for:

- determining test requirements
 - validating NDT test procedures
 - evaluating NDT test procedures
 - approving, documenting and distributing procedures
 - documenting evaluation results
 - amending tests and distributing amendments
- relevant hazards; health, safety and environment requirements relevant to job role including WHS regulations, safe work procedures and use of Personal Protective Equipment (PPE).

Assessment Conditions

- Assessors must:
 - have vocational competency in establishing procedures for non-destructive tests at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the current vocational education and training legislation, frameworks and/or standards.
- 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.

Link

Companion volumes, including implementation guides, are found on the national training register - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=45a7f1d5-61a5-447a-9688-7abbd7e1a5c7>.