



Australian Government

MEM24011 Establish non-destructive tests

Release: 1

MEM24011 Establish non-destructive tests

Modification History

Release 1. Supersedes and is equivalent to MEM24011B Establish non-destructive tests.

Application

This unit of competency defines the skills and knowledge required to research, analyse, develop, approve and evaluate applicable non-destructive tests (NDT) on fabrications, structures and components across a wide range of industries to Level 3 (AS 3669 Non-destructive testing – Qualification and approval of personnel – Aerospace and AS ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel) or equivalent.

Tests are validated and evaluated on critical component or structural zones and actual and potential defects are considered, together with ongoing abnormalities in fabrications, components, structures from a wide range of applications by the selection of relevant testing method.

Materials and chemicals which are subject to codes and regulations - for example, chemicals, explosives, solvents, dangerous materials, acids, or noxious waste products - are subject to safe work habits and must be stored and used in accordance with safe work practices.

This unit should not be selected when unit MEM05025 Perform welding/fabrication inspection has already been selected.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

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

No licensing or legislative requirements apply to this unit at the time of publication. Certification against Australian Standards may be achieved where assessment in this unit of competency is carried out in conjunction with an examining authority as described in AS ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel.

Band: B

Unit Weight: 12

Pre-requisite Unit

MEM11011 Undertake manual handling

MEM13018 Work safely with ionizing radiation

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

MEM16010 Write reports

MEM18001 Use hand tools

MEM24002 Perform penetrant testing
MEM24004 Perform magnetic particle testing
MEM24006 Perform eddy current testing
MEM24008 Perform ultrasonic testing
MEM24010 Perform radiographic testing
MEM24012 Apply metallurgical principles

Competency Field

Non-destructive testing

Unit Sector

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs 1.4 Identify job requirements from specifications
2. Assess requirements for non-destructive test	2.1 Assess inspection area for testing and identify all possible failure sites utilising metallurgical analysis 2.2 Collect relevant information for test development from available sources using accepted techniques 2.3 Analyse and interpret information 2.4 Determine test requirements
3. Establish non-destructive test techniques and procedures	3.1 Designate test methods, techniques and procedures to be used for specific NDT work 3.2 Interpret codes, standards, specifications and procedures 3.3 Develop test procedures in accordance with established techniques and metallurgical principles
4. Validate and approve and confirm non-destructive test	4.1 Validate general and specific test procedures in accordance with established techniques

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
procedures	4.2 Interpret inspection results and evaluate in terms of existing codes, standards and specifications 4.3 Approve procedures in accordance with workplace procedures and relevant codes and standards 4.4 Document procedures and distribute in accordance with workplace requirements and relevant codes and standards
5. Evaluate non-destructive test procedures	5.1 Evaluate procedures for effectiveness 5.2 Document evaluation results and report according to workplace requirements 5.3 Make changes to non-destructive test procedures and distribute based on outcomes of evaluation

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

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM24011B Establish non-destructive tests.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MEM24011 Establish 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 and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, relative testing and conformance standards and applying safety procedures and legislative requirements for establishing non-destructive tests
- conducting metallurgical assessment of inspection areas in accordance with accepted techniques and procedures
- designating the most appropriate method, technique or procedure for specific non-destructive testing (NDT) work on at least two occasions
- developing and validating test procedures appropriate to the testing method selected on at least two occasions
- evaluating inspection results and evaluating in terms of existing codes, standards and specifications on at least two occasions
- evaluating procedures and making required changes
- documenting evaluation results in accordance with procedures.

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:

- safe work practices and procedures and use of personal protective equipment (PPE)
- application of metallurgical analysis to assess inspection areas
- NDT methods, techniques and procedures
- meaning and validity of relevant codes, standards, specifications and procedures
- test procedure for testing techniques and specimen
- validation processes
- process for approval, documentation and distribution of procedures
- evaluation procedures
- process for documentation of evaluation results
- process for amending tests and distributing amendments.

Assessment Conditions

- Assessors must:
 - have vocational competency in establishing non-destructive tests 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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