



**Australian Government**

# **MEM24019 Apply codes and standards to non-destructive testing**

**Release: 1**

# MEM24019 Apply codes and standards to non-destructive testing

## Modification History

Release 1. New unit.

## Application

This unit of competency has been developed for non-destructive testing (NDT) technicians who perform non-destructive tests to the requirements of NDT national and international codes and standards.

The unit defines the skills and knowledge to apply Australian and international standards and codes covering various NDT, as well as relevant sections of standards and codes covering the materials, structures or products that are being tested.

The unit scope includes the skills and knowledge required to identify, locate, and apply relevant Australian and international NDT standards and codes and standards and codes relevant to the object, weld or other material being tested and the environment where the test is being conducted.

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 ISO 9712 Non-destructive testing — Qualification and certification of personnel.

Band: B

Unit Weight: 6

## Pre-requisite Unit

MEM09229 Read and interpret technical engineering drawings

## Competency Field

Non-destructive testing

## 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. Determine job requirements             | 1.1 Follow standard operating procedures (SOPs)<br>1.2 Comply with work health and safety (WHS) requirements at all times |

| Elements                                                                     | Performance Criteria                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes.                                    | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                                                                                                                                                                 |
|                                                                              | 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs                                                                                                                                                                                                                                 |
| 2. Confirm details of required non-destructive tests                         | 2.1 Identify required NDT from customer requirements, drawings, design specification or welding procedures specification<br>2.2 Obtain standards and codes relevant to required NDT and check currency<br>2.3 Review relevant sections of specified standards or codes to identify requirements relevant to NDT |
| 3. Identify and access other standards and codes relevant to NDT requirement | 3.1 Identify relevant standards and codes for NDT object and NDT environment<br>3.2 Confirm materials structures, products, consumables and environment comply with standards and codes specified in job requirements<br>3.3 Review selected standards and codes for implications for NDT procedure             |
| 4. Apply standards and codes to performance of required NDT                  | 4.1 Perform specified NDT to requirements of relevant standards and codes<br>4.2 Record NDT results consistent with requirements in relevant standards and codes                                                                                                                                                |

## 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.

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|                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards and codes relevant to NDT include Australian or international standards and codes covering one or more of: | <ul style="list-style-type: none"> <li>• thermographic testing</li> <li>• visual testing</li> <li>• acoustic emission testing</li> <li>• leak testing</li> <li>• magnetic particle testing</li> <li>• penetrant testing</li> <li>• eddy current testing</li> <li>• ultrasonic testing: <ul style="list-style-type: none"> <li>• time-of-flight diffraction</li> <li>• ultrasonic phased array</li> </ul> </li> <li>• radiographic testing</li> <li>• welding processes and consumables</li> <li>• destructive and non-destructive testing of welds</li> <li>• qualifying of welders, welding inspectors and welding supervisors</li> <li>• equipment, materials and consumables used in construction and fabrication related projects or products.</li> </ul> |
| NDT test object includes one or more of the following:                                                               | <ul style="list-style-type: none"> <li>• materials requiring non-destructive</li> <li>• constructed and fabricated structures and components requiring non-destructive testing</li> <li>• manufactured products and parts requiring non-destructive testing.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Standards and codes relevant to NDT environment include standards and codes covering one or more of the following:   | <ul style="list-style-type: none"> <li>• workplace health and safety</li> <li>• environmental protection</li> <li>• privacy.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Basic NDT test level refers to either:                                                                               | <ul style="list-style-type: none"> <li>• non-destructive testing covered by MEM NDT units at the “Perform basic NDT” level.</li> <li>• non-destructive testing at the ISO 9712 Level 1 level of competence.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## Unit Mapping Information

No equivalent unit

## 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 MEM24019 Apply codes and standards to non-destructive testing

## Modification History

Release 1. New unit.

## Performance Evidence

There must be evidence the candidate demonstrated the ability to:

- identify standards and codes relevant to performing two different types of non-destructive tests above the basic NDT test level
- check the currency of the identified standards and/or codes
- apply relevant sections of correctly identified standards and codes to the set-up, conduct and reporting of at least two different NDT process tests above the basic NDT test level.

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

## Knowledge Evidence

There must be evidence the candidate has knowledge of:

- formats and methods used by standards organisations to arrange, distribute and indicate currency of non-destructive standards and codes
- formats and methods used by standards organisations to arrange, distribute and indicate currency of standards and codes related to materials, welding, structures, products, and consumables
- methods used in drawings, design specifications, welding procedures and other specifications to indicate standards and codes requirements
- requirements of Australian or international standards and codes covering the performance of two or more different types of non-destructive tests above the basic NDT test level
- manufacturer marks and other methods used by manufacturers of materials and consumables to indicate compliance with standards.

## Assessment Conditions

- Assessors must:
  - have vocational competency in applying codes and standards to non-destructive testing 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.
- There must be 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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