



Australian Government

**MEM50422 Diploma of Engineering -
Non-Destructive Testing**

Release: 1

MEM50422 Diploma of Engineering - Non-Destructive Testing

Modification History

Release 1. New qualification.

Qualification Description

This qualification provides the skills and knowledge to work as a non-destructive testing (NDT) technician in manufacturing, engineering and associated industries. The qualification covers theory and practice for major NDT techniques, materials skills and knowledge, and general support skills required to work as an NDT technician.

Completion of this qualification may contribute to recognition at Level 2 or Level 3 against NDT technical standards and NDT industry accreditation schemes.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Entry Requirements

Nil

Packaging Rules

Total number of units = 20

- Seven core units
- Thirteen elective units, consisting of:
 - at least eight Group A units
 - other units to bring the total number of elective units to thirteen. These may come from Group A or B; up to four may come from any endorsed Training Package or accredited course – these units must contribute to a valid, industry-supported vocational outcome.

CORE UNITS

Unit code	Unit title	Prerequisites
MEM13018	Work safely with ionizing radiation	
MEM16006	Organise and communicate information	*
MEM16008	Interact with computing technology	*
MEM24019	Apply codes and standards to non-destructive testing	*
MEM24020	Apply materials technology principles to non-destructive	*

	testing	
MEM30007	Select common engineering materials	
MEM30012	Apply mathematical techniques in a manufacturing engineering or related environment	

ELECTIVE UNITS

Prerequisites for elective units must be completed. Prerequisites only count towards the number of electives required for a group if they are listed in that group. See individual units for details of prerequisites.

Group A – NDT and related units

Unit code	Unit title	Prerequisites
MEM09229	Read and interpret technical engineering drawings	
MEM18001	Use hand tools	*
MEM24002	Perform penetrant testing	*
MEM24004	Perform magnetic particle testing	*
MEM24006	Perform eddy current testing	*
MEM24007	Perform ultrasonic thickness testing	*
MEM24008	Perform ultrasonic testing	*
MEM24010	Perform radiographic testing	*
MEM24011	Establish non-destructive tests	*
MEM24012	Apply metallurgical principles	*
MEM24014	Perform thermography tests	*
MEM24015	Perform digital and computed radiography	*
MEM24016	Perform eddy current array tests	*
MEM24017	Perform visual testing to non-destructive testing standards	*
MEM24018	Perform advanced ultrasonic testing	*

Group B – General electives

Unit code	Unit title	Prerequisites
MEM06003	Carry out heat treatment	*
MEM06004	Select heat treatment processes and test finished product	*
MEM11011	Undertake manual handling	*
MEM12003	Perform precision mechanical measurement	*
MEM12005	Calibrate measuring equipment	*
MEM12023	Perform engineering measurements	*
MEM12024	Perform computations	*
MEM12025	Use graphical techniques and perform simple statistical computations	*
MEM13015	Work safely and effectively in manufacturing and engineering	
MEM14006	Plan work activities	*
MEM15001	Perform basic statistical quality control	*
MEM15004	Perform inspection	*
MEM15005	Select and control inspection processes and procedures	*
MEM15010	Perform laboratory procedures	*
MEM15011	Exercise external quality assurance	*
MEM15012	Maintain/supervise the application of quality procedures	*
MEM16010	Write reports	*
MEM16012	Interpret technical specifications and manuals	*
MEM18001	Use hand tools	*
MEM18002	Use power tools/hand held operations	*
MEM22001	Perform engineering activities	*
MEM23004	Apply technical mathematics	
MEM23063	Select and organise mechanical engineering material tests	*

MEM23064	Select and organise mechatronic engineering material tests	*
MEM23109	Apply engineering mechanics principles	*
MEM29001	Work in Industry 4.0	
MEM48004	Interpret basic binary phase diagrams	
MEM48006	Prepare and examine metallographic samples	*
MEM48029	Interpret and produce complex binary phase diagrams	*
MEM48030	Apply materials selection analysis techniques	*
MEM48031	Select ceramic and glass materials for engineering and manufacturing applications	
MEM48032	Select composite materials for engineering and manufacturing applications	
MEM48033	Apply chemistry principles to materials used manufacturing and engineering processes	
MSL904003	Perform standard calibrations	
MSL924005	Process and interpret data	
MSL925005	Analyse measurements and estimate uncertainties	*
MSL925006	Analyse data and report results	
MSMENV272	Participate in environmentally sustainable work practices	
MSS402084	Undertake root cause analysis	
MSS404056	Apply statistics to operational processes	
PMBTECH40 1E	Predict polymer properties and characteristics	
PMBTECH50 5E	Choose polymer materials for an application	*

Qualification Mapping Information

No equivalent qualification.

Links

Companion Volume implementation guides are found in VETNet -

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