



Australian Government

MEM07005 Perform general machining

Release: 2

MEM07005 Perform general machining

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM07005 Perform general machining (Release 1).

Release 1. Supersedes and is equivalent to MEM07005C Perform general machining.

Application

This unit of competency has been developed for Engineering Tradesperson – Mechanical apprenticeship training and the recognition of trade-level skills in non-computer numerical controlled (CNC) machining of ferrous and non-ferrous materials.

Where high level production machining applications are undertaken unit MEM07041 Perform production machining should be selected.

Where set-up and operation of electro-discharge machines (EDM) is required unit MEM07014 Perform electro-discharge machining (EDM) operations should also be selected.

Where machining is undertaken without undertaking any set up, including mounting of tools, setting of speeds, feeds and other operational parameters unit MEM07024 Operate and monitor machine and process and unit MEM07025 Perform advanced machine and process operation, should be selected as appropriate.

Where the selection and use of precision measurement is required unit MEM12003 Perform precision mechanical measurement should also be selected.

Where substantial marking out is required unit MEM12006 Mark off/out (general engineering) should also be selected.

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

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

Band: A

Unit Weight: 8

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations

MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information
MEM18001	Use hand tools

Competency Field

Machine and process operations

Elements and 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)
		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, drawings, job sheets or work instructions
2	Determine sequence of operations	2.1	Determine sequence of operations to meet job specifications
		2.2	Select appropriate material and establish datum, as required
3	Select and mount tools	3.1	Select appropriate tools for job, sharpen and shape, as required
		3.2	Mount and position tools to meet requirements
4	Perform	4.1	Transfer dimensions to determine machining parameters

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

machining operations	4.2	Set machining parameters to meet job requirements and maximise tool life
	4.3	Ensure work is securely held to avoid damage to product, and meet safety requirements
	4.4	Perform machining to produce product to meet specifications
	4.5	Carry out routine maintenance and adjustments, as required
5	Check components	
	5.1	Check components for compliance with specifications
	5.2	Rectify non-compliant product in accordance with SOPs as required

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.

Operations include one (1) or more of the following:

- parallel cutting
- slotting
- planing
- drilling
- knurling
- cutting flats
- non-precision surface grinding operations

Materials include one

- ferrous

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(1) or more of the following:

- non-ferrous

Measuring instruments include one (1) or more of the following:

- micrometres
- vernier calipers
- calipers
- steel rules
- dividers
- scribes

Tools include the following:

- cutting tools
- tool holders

Machining parameters include one (1) or more of the following:

- speeds
- feeds
- stops
- coolant and cutting lubricants

Machines include one (1) or more of the following:

- lathes
- mills
- planers
- shapers
- slotters
- surface grinder

Maintenance and adjustments include one (1) or more of the following:

- machining parameters
- slide and collar adjustment
- cleaning and lubrication

Unit Mapping Information

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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>

Assessment Requirements for MEM07005 Perform general machining

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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 on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- planning a job including identifying job requirements from drawings, instructions or specifications and a sequence of operations
- identifying any required tooling, measuring equipment and accessories
- selecting and mounting required tooling
- selecting material and marking out, as required
- performing machining to meet specifications
- checking machined components for conformance to specifications and identifying adjustments to be made to settings/tooling
- rectifying non-compliant components
- carrying out routine maintenance and adjustments, as required.

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)
- reasons for selecting the chosen sequence of operations
- methods of work holding for machining operations
- transferring dimensions, including establishing datum points/lines
- geometry of cutting tools for a range of materials and applications
- reasons for maintaining properly sharpened cutting tools
- principles underpinning machining operations
- selection of feeds and speeds to suit a range of materials and operations
- methods of mounting a range of cutting tools
- safety precautions associated with clamping materials, guards and shields
- tolerances and limits of size
- machine adjustment, lubrication and cleaning

- measurement techniques, tools and devices
- tools, techniques and equipment for checking components for conformance to specifications and rectifying non-compliant components.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing general machining 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.
- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including 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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