



Australian Government

MEM07006 Perform lathe operations

Release: 2

MEM07006 Perform lathe operations

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM07006 Perform lathe operations (Release 1).

Release 1. Supersedes and is equivalent to MEM07006C Perform lathe operations.

Application

This unit of competency has been developed for Engineering Tradesperson - Mechanical apprenticeship training and the recognition of trade-level skills in performing machining operations on a lathe to produce components to required tolerances and specifications using all types of accessories.

Skills covered by this unit are generally applied in occupational and work situations associated with trade-level fitting and machining work.

This unit does not cover turning of multi-start threads or use of taper turning attachment, copy turning attachment or multi-start threads.

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: 4

Pre-requisite Unit

MEM07005	Perform general machining
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	Prepare to undertake work	2.1	Determine sequence of operation
		2.2	Select tooling, using International Standard Organisation (ISO) standards or according to SOPs, to produce component to specification
		2.3	Set up job using appropriate measuring instruments
3	Perform turning operations	3.1	Calculate speeds and feeds
		3.2	Set up machine, changing gears and speed using a lead screw and appropriate mathematical techniques and reference material
		3.3	Use the full range of accessories on a centre lathe
		3.4	Perform turning operations to specification
4	Check components	4.1	Check components for compliance with specifications
		4.2	Rectify non-compliant product in accordance with SOPs

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.

- Tooling includes one (1) or more of the following:**
- high speed steel, tungsten carbide, ceramic graphite and other standard cutting tools
 - boring bars
 - drills
 - reamers
 - thread chasers
 - tapping heads
 - taps

- Instruments include one (1) or more of the following:**
- manual and digital micrometres
 - vernier calipers
 - dial indicators
 - scribing blocks

- Speeds and feeds include one (1) or more of the following:**
- setting up machine
 - changing gears and speeds
 - use of lead screw
 - calculations

- Accessories include the following:**
- three and four jaw chucks
 - centres
 - face plate
 - steadies
 - cross slide
 - tailstock

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.

Turning operations include one (1) or more of the following:

- manual parallel and taper turning
- internal and external turning, including boring drilling, reaming, single start thread cutting and parting off

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM07006 Perform lathe operations (Release 1).

Release 1. Supersedes and is equivalent to MEM07006C Perform lathe operations.

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 MEM07006 Perform lathe operations

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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
- identifying and interpreting engineering drawings to AS 1100,401-1884 (R2014) Technical drawing to determine job requirements for lathe operations, including quantity, material, measurements and tolerances
- selecting cutting tools using International Standard Organisation (ISO) standards or according to SOPs from drawings, sketches, specifications and instructions, as appropriate
- fixing of job and tooling to specifications
- calculating and setting required speeds and feeds
- undertaking turning operations to specifications
- checking components for conformance to specifications
- rectifying non-compliant product.

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)
- sequence of lathe operations to achieve job requirements
- tool type and geometry to achieve required specifications and for work pieces of different materials
- numerical operations, geometry and calculations/formulae for lathe operations
- consequences of varying speeds and feeds from the optimum rates calculated
- characteristics of different materials and their effects on cutting speeds and feeds
- application of lathe accessories
- techniques, tools and equipment to measure materials and machined components
- 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 lathe operations 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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