Australian Government

Department of Education, Employment and Workplace Relations

MEM07005B Perform general machining

Release: 1

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Modification History

There are no notes for this unit.

Unit Descriptor

This unit covers determining the job requirements and sequence of operations, selecting and mounting tools, performing the machining, measuring the components, and adjusting and maintaining a range of standard machine tools.

Application of the Unit

Machining is undertaken on a range of non- CNC (computer numerical controlled) machines

Licensing/Regulatory Information

Pre-Requisites

Path 1	MEM09002B Interpret technical drawing MEM12023A Perform engineering measurements MEM18001C Use hand tools

Employability Skills Information

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency.
Together, performance criteria specify the requirements for competent performance. Text in italics is explained in the range statement following.

Elements and Performance Criteria

Elements and Performance Criteria

Element		Performance Criteria	
1	Determine job requirements	1.1	Drawings, instructions and specifications are interpreted and understood.
2	Determine sequence of operations	2.1	Sequence of **operations** including job set-up is determined for maximum efficiency and to meet job specifications.
		2.2	Appropriate **material** is selected and datum established as required.
3	Select and mount tools	3.1	Appropriate **tools** for job are selected, sharpened and shaped as required.
		3.2	Tools are mounted and positioned correctly.
4	Perform machining operations	4.1	Basic **marking out techniques** are used where required.
		4.2	**Machining parameters** are set for job requirements and maximum tool life.
		4.3	Work is held or correctly clamped without damage to product, and all safety requirements are met.
		4.4	Machining is performed in a safe manner utilising all guards, safety procedures and personal protective clothing and equipment.
5	Measure components	5.1	Components are checked with instruments or gauges appropriate to the measurement requirements to ensure compliance with specifications.
6	Adjust and maintain machine	6.1	Routine **maintenance and adjustments** are carried out as required which may include slide and collar adjustment, cleaning and lubrication and the like.

Required Skills and Knowledge

Evidence Guide

The evidence guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the unit descriptor, performance criteria, range statement and the assessment guidelines for the Metal and Engineering Training Package

Overview of assessment requirements	A person who demonstrates competency in this unit must be able to perform general machining. Competency in this unit cannot be claimed until all prerequisites have been satisfied.
Context of assessment	This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.
Interdependent assessment	This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with performing general machining or other units requiring the exercise of the skills and knowledge covered by this unit.
Method of assessment	Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant

	workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.
Consistency of performance	Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.
Required skills	Look for evidence that confirms skills in: reading and interpreting routine information on written job instructions, specifications and standard operating procedures. May include drawings following oral instruction planning and sequencing operations preparing operational work plan sharpening and shaping cutting tools identifying worn or damaged cutting tools correct mounting and positioning of cutting tools basic marking out of materials setting machining parameters to achieve the job requirements and maximise tool life using appropriate and sufficient clamping/mounting of the work piece using coolant/lubricant correctly checking for conformance to specifications measuring to specified tolerances and dimensions
Required knowledge	Look for evidence that confirms knowledge of: reasons for selecting the chosen sequence of

operations

methods of work holding

basic marking out techniques including datum points/lines etc.

geometry of cutting tools for a range of materials and applications

benefits of using correctly sharpened cutting tools

machine operation

selection of feeds and speeds to suit a range of materials and operations within the scope of this unit

correct methods of mounting a variety of cutting tools

safety issues with regard to correct clamping, guards, shields etc.

tolerances, limits of size

situations indicating the need for machine adjustment, lubrication and cleaning

techniques, tools and equipment to measure materials and machined components

use and application of personal protective equipment

safe work practices and procedures

hazards and control measures associated with general machining

Range Statement

The range statement provides information about the context in which the unit of competency is carried out. The variables and scope cater for different work requirements, work practices and knowledge between States, Territories and the Commonwealth, and between organisations and workplaces. The range statement relates to the unit as a whole and provides a focus for assessment. Text in italics in the performance criteria is explained here.

The following variables may be present and may include, but are not limited to, the examples listed under the scope. All work is undertaken to relevant legislative requirements, where applicable

Variable	Scope
Operations	Parallel cutting, slotting, planing, drilling, knurling, cutting flats, non-precision surface grinding operations etc.
Material	Ferrous and non ferrous
Tools	Cutting tools and accessories, measuring devices
Marking out techniques	Basic marking out techniques using calipers, steel rules, dividers, scribers etc.
Machining parameters	Speeds, feeds, stops, coolant and cutting lubricants etc. Machines include lathes, mills, planers, shapers, radial arm drills, slotters, surface grinder etc.
Maintenance and adjustments	Slide and collar adjustment, cleaning and lubrication

Unit Sector(s)

Competency field

Machine&process operations

Band

A

Unit Weight

8

Related units

Drilling operations in this unit exclude those covered by Unit MEM18002B (Use power tools/hand held operations).
Where substantial marking out is required, Unit MEM12006B (Mark off/out (general engineering)) should be considered.
Where precision measurement is required, Unit MEM12003B (Perform precision mechanical measurement) should also be considered.
For set-up and operation of EDM machines, see Unit MEM07014B (Perform electro-discharge (EDM) machining operations).