



Australian Government

Department of Education, Employment and Workplace Relations

MEM30003A Produce detailed engineering drawings

Release: 1

MEM30003A Produce detailed engineering drawings

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers producing detailed drawings of engineering components complete with surface texture details and dimensions.
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Application of the Unit

Application of the unit	<p>This unit applies to all engineering and manufacturing environments.</p> <p>Work is carried out under supervision.</p> <p>Drawings may be produced with or without the use of computer aided design (CAD) systems.</p> <p>Band: 0</p> <p>Unit Weight: 0</p>
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM16006A	Organise and communicate information
	MEM16008A	Interact with computing technology
	MEM30001A	Use computer aided drafting

Prerequisite units		
		systems to produce basic engineering drawings
	MEM30002A	Produce basic engineering graphics

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Determine drawing requirements	1.1. Drawing requirements are checked and interpreted from work order or similar. 1.2. Required information is sourced from workshop manuals, customer specifications, product suppliers, designers or similar. 1.3. Scope of drawing including layout, additional required information and resources is planned.
2. Produce detail drawings in third angle projection, including auxiliary views, sections and assemblies	2.1. Drawing details including assembly and components are completed as per AS 1100 or similar. 2.2. Dimensions of various components are determined and inserted where required. 2.3. Appropriate symbols for limits and fits, surface texture and geometric tolerances are included. 2.4. Simple components or layouts are drawn in third angle projection. 2.5. An auxiliary view is drawn of a component, given two views. 2.6. Correct convention for parts is shown.
3. Issue and/or file drawing	3.1. Drawing is issued and/or filed according to workplace procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- drawing
- documenting
- applying principles of geometric tolerances
- identifying functional surfaces and datums on assembly drawings
- producing detail drawings of machine components and dimension from datums

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

Look for evidence that confirms knowledge of:

- projection
- auxiliary views, special attention
- detail drawing methods
- standard engineering drawing symbols, references and terminology
- projection lines
- arrangements
- general tolerancing
- limits and fits
- shaft and hole basis
- extremes of fit
- surface texture
- selection of standard roughness values for given processes
- application of surface finish symbols to drawings
- selection and application of equivalent surface roughness numbers
- geometric tolerancing
- simple geometry tolerancing (no datum references, flatness, roundness etc.)
- geometry tolerance with datum reference (e.g. parallel squareness)

Evidence Guide

EVIDENCE GUIDE	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to produce detailed engineering drawings. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>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.</p>
<p>Context of and specific resources for assessment</p>	<p>This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, i.e. the candidate is not in productive work, an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with producing detailed engineering drawings, or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p>Method of assessment</p>	<p>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.</p>

EVIDENCE GUIDE

Guidance information for assessment	
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Range Statement**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Geometric tolerances

- Simple geometry tolerancing (no datum references, flatness, roundness etc.)
- Geometry tolerance with datum reference (e.g. parallel squareness)

Simple components or layouts

May include fabricated components, machined components, cast and forged components, structural details, electrical electronic components, fluid power components

Parts

- Mechanical components such as fasteners, bearings, seals, gears, keys, splines etc.
- Electrical components such as cables, connectors, terminations etc.
- Fluid power components such as actuators, valves, hoses, connectors, relays etc.

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Engineering technician
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