Australian Government

Department of Education, Employment and Workplace Relations

MEM30002A Produce basic engineering graphics

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers producing drawings or similar graphical representations where the critical dimensions and associated tolerances and design specifications are predetermined.

Application of the Unit

Application of the unit	This unit applies to any of the full range of engineering disciplines. All work is carried out under supervision. Manual drafting or CAD drawing equipment may be used. If CAD skills are required, then Unit MEM30001A (Use computer aided drafting systems to produce basic engineering drawings) and its prerequisites should be selected If additional CAD skills are required, then Unit MEM30004A (Use CAD to create and display 3D models) should also be selected. If fully detailed drawings are required, then Unit MEM30003A (Produce detailed engineering drawings) should be selected. **Band**: **0** **Unit Weight**: **0**

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM16006A	Organise and communicate information
	MEM16008A	Interact with computing technology

Employability Skills Information

Employability skills	This unit contains employability skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify drawing requirements	1.1. All relevant job requirements and design specifications are obtained in accordance with workplace procedures. 1.2. Drawing requirements and specifications are identified and interpreted.
2. Prepare assembly, layout and general drawings in accordance with instructions	2.1. Drawings are prepared in plane orthogonal, isometric projection or equivalent. 2.2. Problems are resolved in consultation with a supervisor.
3. Draw sections through simple engineering components as required for clarity	3.1. Sections are drawn through an engineering component incorporating correct use of cutting plane(s) symbols and conventions.
4. Select physical dimensions from manufacturer handbooks	4.1. Where required, components and/or materials are selected from supplier/manufacturer catalogues using predetermined design specifications.
5. Prepare engineering parts list	5.1. An engineering parts list is produced in accordance with workplace procedures.
6. Issue or file completed drawing/parts list	6.1. Approved drawings and/or parts lists are stored, catalogued and issued in accordance with standard operating 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: • correctly using and maintaining equipment including CAD • manual drafting, filing and printing • reading and interpreting specifications • communicating

REQUIRED SKILLS AND KNOWLEDGE
• visualising components • preparing a drawing in plane orthogonal, isometric projection or equivalent
Required knowledge
Look for evidence that confirms knowledge of: • drafting media including cartridge paper, tracing paper, drafting film, plan printing paper • layout conventions • effective use of blank space, location of notes and symbols • sectioning • draw sections through an engineering component incorporating correct use of cutting plane(s) symbols and conventions. • overview of graphical techniques • assembly drawings, explosion drawings • schematics/line drawings, graphs, pictorials

Evidence Guide

EVIDENCE GUIDE	
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.	
Overview of assessment	A person who demonstrates competency in this unit must be able to produce basic engineering graphics. Competency in this unit cannot be claimed until all prerequisites have been satisfied.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	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.
Context of and specific resources for 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. This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with producing basic engineering graphics, 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.

EVIDENCE GUIDE	
Guidance information for assessment	

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.	
Specifications	May be obtained form design information, customer, ideas, concepts/expectations/requirements, sketches, preliminary layouts
Drawings	Include plans, diagrams, charts
Consultation	May include reference to appropriate personnel including technical supervisors, manufacturers, suppliers, contractors, customers
Engineering parts list	May include part name, description of part, material specification or part number, quantities and other details as required
Issued drawings	Hard copy, photographic, slide or transparency form including presentation as a single drawing and/or with other drawings, support documentation as a package

Unit Sector(s)

Unit sector	

Co-requisite units

Co-requisite units		

Competency field

Competency field	Engineering technician