



Australian Government

Department of Education, Employment and Workplace Relations

MEM09006B Perform advanced engineering detail drafting

Release: 1

MEM09006B Perform advanced engineering detail drafting

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers producing assembly, layout and detail drawings to Australian Standard 1100 or equivalent.
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Application of the Unit

Application of the unit	Skills covered by this unit are applied individually or in a team environment where comprehensive responsibility for the production of the drawing is exercised, and critical dimensions and associated tolerances are determined where required. Manual drafting and drawing equipment is used or where a CAD (Computer Aided Design) system is used, Unit MEM09009C (Create 2D drawings using computer aided design system) and/or Unit MEM09010C (Create 3D models using computer aided design system) should also be considered. Band: B Unit Weight: 4
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing
	MEM09003B	Prepare basic engineering drawing
	MEM09005B	Basic engineering detail drafting

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. Prepare assembly, layout and detail drawing	1.1. Specification requirements are determined. 1.2. Engineering calculations are undertaken to determine all dimensions including limits and fits, surface texture, datum references and geometric tolerances where appropriate to ensure functional operation and suitability. 1.3. All drawings are produced to Australian Standard 1100 or equivalent.
2. Interpret specifications and select material, components and/or assemblies	2.1. Components, material and/or assemblies are selected from data sheets or manufacturers' catalogues to meet specifications.
3. Check drawings	3.1. Drawings are checked to ensure compliance with specifications. 3.2. Drawings are checked to ensure that assembly/fabrication is possible.

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:

- obtaining all relevant work instructions and requirements
- producing all drawings in accordance with AS1100 or equivalent
- obtaining all relevant data sheets, catalogues, etc.
- checking drawings for conformance to specification
- checking drawings to ensure that assembly/fabrication is possible
- reading, interpreting and following information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
- planning and sequencing operations
- checking and clarifying task related information
- undertaking numerical operations, geometry and calculations/formulae within the

REQUIRED SKILLS AND KNOWLEDGE

scope of this unit

Required knowledge

Look for evidence that confirms knowledge of:

- specifications and/or requirements of the component, assembly or layout to be drawn
- functional operation of the component/assembly to be drawn
- surfaces which are to be in contact or separated
- appropriate type of fit for contacting surfaces
- reasons for selecting the chosen type of fit
- effect of surface finish on the performance/operation of surfaces
- appropriate datum points
- all appropriate lineal, diametric and geometric tolerances
- procedures for determining tolerances
- requirements of AS1100 or equivalent for the drawing(s) to be produced
- specifications of the components, materials and/or assemblies
- appropriate components and materials from supplier/manufacturers' catalogues
- reasons for selecting the chosen components and/or materials
- procedures for checking and approving drawings
- reasons for checking the drawings to ensure that manufacturing/assembly is possible, efficient and cost effective
- drawing specifications
- methods of manufacture/assembly/fabrication from the drawing(s)
- unnecessary or inappropriate tolerances
- hazards and control measures associated with performing advanced engineering detail drafting, including housekeeping
- safe work practices and procedures

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 perform advanced engineering detail drafting. 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 performing advanced engineering detail drafting 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.

Australian Standard 1100 or equivalent

Complete familiarity with AS 1100.101 or similar and its application is required in the respective field

Unit Sector(s)**Unit sector****Co-requisite units****Co-requisite units**

Competency field

Competency field	Drawing, drafting and design
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