



Australian Government

MEM09005 Perform basic engineering detail drafting

Release: 1

MEM09005 Perform basic engineering detail drafting

Modification History

Release 1. Supersedes and is equivalent to MEM09005B Perform basic engineering detail drafting

Application

This unit of competency defines the skills and knowledge required to produce drawings to AS 1100 Technical drawing or equivalent using manual drafting or drawing equipment, where the critical dimensions, associated tolerances and design specifications are predetermined.

Where a computer-aided design (CAD) system is used unit MEM09009 Create 2-D drawings using computer-aided design system and MEM09010 Create 3-D models using computer-aided design system, should be selected as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 8

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM09003	Prepare basic engineering drawing
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Drawing, drafting and design

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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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	Identify job requirements from specifications, job sheets or associated work instructions
2	Prepare assembly, layout and detail drafting	2.1	Prepare drawings in plane orthogonal, isometric projection or equivalent, including auxiliary views and sections to AS 1100 Technical drawing
		2.2	Prepare layout, assembly and component drawings from specifications
		2.3	Apply drawing dimensions and label using supplied tolerances in accordance with AS 1100 Technical drawing
		2.4	Produce drawings to specification in accordance with SOPs
		2.5	Use standard symbols to AS 1100 Technical drawing, or equivalent, to specify requirements
3	Determine component and material requirements	3.1	Identify component and material requirements according to design specifications
		3.2	Compile component and materials list
4	Complete documentation	4.1	Complete drawings and associated documentation in accordance with SOPs
		4.2	Store drawings and documentation 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.

AS 1100 Technical drawing includes the following:

- interpretation under guidance, particularly in respect to any geometric tolerancing. AS 1100 Technical drawing is an extensive work and its application would usually be in line with SOPs

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM09005B Perform basic engineering detail drafting

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 MEM09005 Perform basic engineering detail drafting

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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
- preparing layout, assembly and component drawings to AS 1100 Technical drawing in line with SOPs in plane orthogonal, isometric projection or equivalent, including auxiliary views and sections
- applying dimensions and labelling using supplied tolerances
- producing drawings to specifications using standard symbols to AS 1100 Technical drawing or equivalent
- undertaking numerical operations, geometry, calculations and formulae associated with performing basic engineering detail drafting
- compiling a component and materials list
- completing documentation according to SOPs.

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
- appropriate projection for the drawing purpose and reasons for selection
- reasons for including auxiliary views in drawings
- requirements of AS 1100 Technical drawing or equivalent with respect to dimensions, tolerances and labels
- procedures for producing component, layout and assembly drawings, and uses of drawings
- numerical operations, geometry, calculations and formulae associated with performing basic engineering detail drafting
- common symbols used in drawings to AS 1100 Technical drawing or equivalent
- design specifications of components
- appropriate components and materials from supplier catalogues and reasons for selection.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing basic engineering detail drafting 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
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, 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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