



Australian Government

MEM09011 Apply basic engineering design concepts

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM09011B Apply basic engineering design concepts

Application

This unit of competency defines the skills and knowledge required to apply in situ design skills to determine design requirements and create a design for application within the engineering fields of mechanical, production, electrical or electronic, fabrication and fluid power. Design concepts may be applied to the fabrication and modification of structures, plant and equipment, and design of tooling and gauges, production control systems, fluid power layouts and electrical circuits.

This unit is suitable for application by personnel who are responsible for the manufacture of the design outcome, either individually or as part of a team.

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

Band: A

Unit Weight: 6

Pre-requisite Unit

MEM09002	Interpret technical 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 design requirements from specifications, job sheets or associated work instructions
2	Determine design concepts	2.1	Establish design concepts with regard to design considerations
		2.2	Consult codes, regulations and technical documentation to establish design limitations in accordance with SOPs, where appropriate
		2.3	Identify sources of expert assistance and use, as required
3	Create design	3.1	Ensure design meets end use requirement
		3.2	Ensure design meets all legislative and regulatory requirements
		3.3	Verify design concept in accordance with SOPs
		3.4	Produce design outcome in accordance with job requirements

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.

Design considerations include one (1) or more of the following:

- location
- assembly requirements
- process
- material
- quantity
- cost
- outcome
- impact of the design on other equipment, processes or personnel

Design outcome includes one (1) or more of the following:

- sketch
- drawing
- prototype
- document
- model
- finished product

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>