



Australian Government

MEM48022 Apply metallurgical principles and practice to determine metal forming and shaping processes

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSATCM511A Apply metallurgy principles and practice to determine metal forming and shaping processes.

Application

This unit of competency defines the skills and knowledge required to determine metal forming and shaping processes for an application as a member of a design and development team or similar in support of developing and selecting metal forming and shaping processes.

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

Pre-requisite Unit

Nil

Competency Field

Metallurgy

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
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 Undertake consultations and briefings with managers, employers and customers to determine application requirements
2. Determine metal forming and shaping process to suit application requirements	2.1 Identify and research sources of information appropriate to metal forming and shaping 2.2 Select the relevant scientific techniques and principles of metal forming and shaping and associated software and hardware technologies 2.3 Use appropriate calculations and coherent units in the solution of engineering calculations

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	2.4 Use significant figures in engineering calculations 2.5 Determine metal forming and shaping requirements
3. Supervise metal forming and shaping processes	3.1 Communicate metal forming and shaping parameters to appropriate personnel 3.2 Supervise metal forming and shaping processes to ensure required solutions are achieved 3.3 Evaluate metal forming and shaping processes and advise on defects

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.

Sources of information include one or more of the following:	- reference standards and texts - manufacturers catalogues and industrial magazines - websites - phone information gathering - email information gathering.
Plastic deformation of metals include:	- revisions of the structural nature of plastic deformation of metals - hot and cold working and recrystallisation - revision of material on strength and ductility test parameters - yielding and associated phenomena - analysis of the complexes of stresses present in metal deformation.
Lubrication of metal surfaces include:	- types of lubrication - analysis of metal forming lubrication conditions - typical lubricants used.

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>