



Australian Government

**Assessment Requirements for MEM48022
Apply metallurgical principles and practice
to determine metal forming and shaping
processes**

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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

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- undertaking consultations with relevant personnel and researching other sources of information including industry codes and standards in applying metallurgical principles and practice to determining metal forming and shaping processes appropriate to the application
- selecting scientific principles to suit applications
- selecting basic mechanical techniques and associated technologies, software and hardware to suit applications on at least two occasions
- applying and manipulating appropriate formulas for applications involving engineering calculations
- applying appropriate calculations to engineering situations
- referring solutions to the original aim of the application
- quoting solutions in appropriate units, using appropriate significant figures
- quoting limitations of solutions, due to assumptions, scientific principles and techniques used
- presenting and recommending solutions.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

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
- sources of information
- metallurgical principles and practices
- plastic deformation of metals
- scientific principles, techniques and associated technologies, software and hardware to suit different applications

- lubrication of metal surfaces
- metal forming and shaping principles and methods, including:
 - physical and mechanical principles of the deformation process
 - industrial practices
 - equipment and process design
 - typical product defects
- advantages and disadvantages of:
 - rolling
 - forging
 - extrusion
 - wire drawing
 - tube manufacture
 - sheet metal forming, deep drawing and pressing
 - powder metallurgy.
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Assessment Conditions

- Assessors must:
 - have vocational competency in applying metallurgical principles and practice to determine metal forming and shaping processes 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 that 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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Links

Companion Volume implementation guides are found in VETNet -

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