



Australian Government

Assessment Requirements for MEM23133

Evaluate rapid tooling applications

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM23133A Evaluate rapid tooling applications.

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:

- determining technologies, parameters and context of rapid tooling applications
- investigating sustainability implications of rapid tooling processes
- reviewing features and functions of rapid tooling processes and the fitness for purpose of tooling produced, on at least two occasions
- evaluating rapid tooling processes for efficiency and cost-benefit against alternative tool manufacturing techniques on at least two occasions
- selecting appropriate analysis principles, techniques and software
- identifying and assessing compliance against relevant work health and safety (WHS) and regulatory requirements, and risk management and organisational procedures
- assessing software, facilities, plant, tooling and materials for suitability to rapid tooling applications on at least two occasions
- applying systems thinking, continuous improvement, and constraint and contingency management to evaluation of rapid tooling processes
- reporting and documenting results of evaluation.

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:

- rapid tooling applications
 - context of rapid tooling processes
 - features and functions of additive rapid tooling processes, including:
 - 3D printing (3DP)
 - stereolithography (SLA)
 - selective laser sintering (SLS)
 - electron beam melting (EBM)
 - fused deposition modelling (FDM) and direct metal deposition (DMD)
 - casting (patternless and rapid pattern processes)
 - vacuum forming
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- rapid prototyping machines
 - metal spray deposition
 - materials for additive ‘printing’ processes
 - materials for sprayed metal deposition
 - materials for rapid casting
 - other materials including:
 - thermoplastics for vacuum forming
 - materials for rapid machining and fabrication
 - tool features and functions including:
 - functional requirements
 - punches and dies
 - cavity shapes
 - clearances and drafts
 - heat treatment options
 - surface finishing
 - tool component assembly, location and security
 - computer-aided design (CAD) design and modelling techniques to suit rapid tooling materials, machines and processes
 - sustainability implications of rapid tooling and rapid processes
 - typical advantages and disadvantages of rapid tooling compared to alternative or traditional system costings
 - sources of support including technical and professional assistance
 - rapid tooling software principles and applications
 - WHS, regulatory and risk management requirements
 - typical facilities, services, plant required for rapid tooling
 - systems thinking, continuous improvement, constraint and contingency management, and comparative supply chain performance
 - WHS and regulatory requirements, codes of practice, standards, risk management and registration requirements.
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Assessment Conditions

- Assessors must:
 - have vocational competency in evaluating rapid tooling applications 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.
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- 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>
