Australian Government

MEM23135 Evaluate moulding tools and processes

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM23135A Evaluate moulding tools and processes.

Application

This unit of competency defines the skills and knowledge required to evaluate design features and functions of moulding tools and related processes and includes injection moulds, blow, extrusion, compression, rotating, thermoforming and die casting moulds, and moulds for low volume components.

It is suitable for people working as tool designers and maintenance technicians or paraprofessionals and draftspersons, and for those pursuing manufacturing engineering or related technical qualifications and careers.

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

Pre-requisite Unit

MEM23004 Apply technical mathematics

Competency Field

Engineering science

Elements and Performance Criteria

Elements	**Performance Criteria**
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Determine scope of moulding tool evaluation	1.1 Identify moulding tools used and related moulded products for evaluation 1.2 Confirm stakeholders to be consulted on evaluation 1.3 Confirm that appropriate support, including technical and professional assistance, is available 1.4 Identify relevant work health and safety (WHS) and regulatory requirements, standards, codes of practice, risk management and organisational procedures
2. Prepare for evaluation	2.1 Identify principles and techniques required to evaluate and optimise

Elements	**Performance Criteria**
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
of moulding tools	moulding tools and related manufacturing processes 2.2 Select appropriate analysis techniques, software and software validation techniques 2.3 Investigate sustainability implications of mould tooling and related manufacturing processes
3. Evaluate moulding tools and related manufacturing processes	3.1 Review design and construction features and functions of moulding tools and related manufacturing processes 3.2 Assess moulding tools and related manufacturing processes for compliance with WHS and other regulatory and risk management requirements 3.3 Assess moulding tools, products and processes for sustainability 3.4 Assess suitability of moulding tools for integration with quick changeover, preventative maintenance and other lean manufacturing-related techniques 3.5 Review integration of moulding tools with production management and control software 3.6 Apply systems thinking, continuous improvement, problem-solving and decision- making, and constraint and contingency management principles and techniques to evaluation 3.7 Review tooling in relation to product manufacturability and process maintainability
4. Report results	4.1 Record results of evaluation 4.2 Provide documentation including tool, product and process analysis, and computer-aided design (CAD) files

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.	
Features and functions of moulding tools include:	• materials used in their construction • method of manufacture including welding and machining • dimensions and tolerances • method of installation and any capacity for operator adjustment during use • method of adjustment for production changeover • the degree of training of operators required before use of the moulding tool • any limitations on the use of the moulding tool • cost of manufacture.
Injection moulded components include:	• all thermoplastics • some thermosets and elastomers • metal powders including low alloy and stainless steels, soft magnetic and controlled expansion alloys.
Enhanced injection and blow moulding tools and processes includes:	• multi-component and hard-soft injection moulding • microcellular foamed materials • powder injection moulding (PIM) and metal injection moulding (MIM) • gas or water assisted injection.
WHS, regulatory requirements and organisational procedures include:	• WHS acts, regulations and relevant standards • codes of practice from Australian and overseas engineering and technical associations and societies • risk assessments • registration requirements • safe work practices • state and territory regulatory requirements.
Appropriate technical and professional assistance includes:	• technical support and advice relating to elements which have intrinsic dangers including • professional support for technologies.
Sustainability includes:	• meeting all regulatory requirements • conforming to all industry covenants, protocols and best practice guides • minimising ecological and environmental footprint of process, plant and product • maximising economic benefit of process plant and product to the organisation and the community • minimising the negative WHS impact on employees, community

	and customer.
Continuous improvement implementation includes one or more of the following techniques:	• balanced scorecard • current and future state mapping • measuring performance against benchmarks • process improvement, problem solving and decision making • data management, generation, recording, analysing, storing and use of software • training for improvement systems participation • technical training.
Constraints and contingencies include one or more of the following:	• financial • organisational • procedural • cultural • physical (resource, access and logistical limitations).
Lean principles affecting tooling and related processes include:	• tooling and processing costs • capacity and responsiveness to product demand • quality of product • reliability of tooling, process and supply • waste minimisation which includes ease of tool change.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM23135A Evaluate moulding tools and processes.

Links

Companion Volume Implementation Guides are available on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2