



Australian Government

**Assessment Requirements for MEM04014
Develop and manufacture production
patterns**

Release: 2

Assessment Requirements for MEM04014 Develop and manufacture production patterns

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM04014 Develop and manufacture production patterns (Release 1).

Release 1. Supersedes and is equivalent to MEM04014B Develop and manufacture production patterns.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- planning pattern and designing by reading and interpreting customer's specifications (verbal or written) for number, layout, runner system and core box design
- interpreting and visualising pattern design and checking against customer requirements
- developing a plan for sequence of manufacture for a low or high volume
- developing pattern equipment by selecting and obtaining appropriate materials
- undertaking mathematical calculations for angles, tapers, clearances and determination of contraction rates
- selecting and using appropriate machines, machining process and hand and power tools as needed to shape, produce, fashion and manufacture production patterns and core boxes to specification
- checking production patterns and core boxes for surface finish, mouldability to specification.

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 and use of personal protective equipment (PPE)
- characteristics of metals and alloys and their application in the development and manufacture of production patterns
- tolerances and contraction rates typically used in the manufacture of production patterns
- production moulding and casting techniques
- tooling required for casting and moulding
- methoding techniques
- use and application of jigs and fixtures
- methods of construction, including machining provision and clamping arrangements

- appropriate techniques, tools and equipment to measure, mark out and produce production patterns
- formulae and mathematical techniques required for manufacturing production patterns and core boxes, i.e. contraction, taper, clearances and machining allowances
- identification coding and numbering
- pattern checking techniques
- mouldability, i.e. surface finish, face taper, convex or concave perspectives and undercuts.

Assessment Conditions

- Assessors must:
 - have vocational competency in the development and manufacture of production patterns 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.
- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including 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.

Links

The MEM Metal and Engineering Training Package Companion Volume Implementation Guide is available from VETNet -

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