



Australian Government

Assessment Requirements for MSFFDM5012 Research, test and apply materials and technologies for design projects

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Modification History

Release 1. Unit code and title changed. Application changed. Elements and Performance Criteria changed. Range of Conditions removed and relevant information moved to Assessment Requirements. Assessment Requirements changed. Supersedes and is not equivalent to MSFFDT5008 Research and recommend alternative manufacturing processes and MSFFDT5009 Research and recommend machine technology.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- research, test and apply materials and associated technologies for three different design briefs, and in doing so:
 - research five different types of materials and three different design- or production-related technologies
 - develop, implement and report on a test program for two different types of materials and two different design- or production-related technologies
- prepare and present three reports in appropriate formats to convey information to key stakeholders.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- elements and principles of design, their interrelationships and how they are used in materials selection
- characteristics, properties and selection criteria for different materials, both aesthetic and functional, including:
 - manmade and natural timbers (native and imported) including composites and finishes
 - plastics
 - metals
 - alloys
 - stone-based products
 - glass
 - textiles
 - fibreglass
 - foam
 - synthetics
 - cardboard and paper products

- any other manipulable substance
- particular features and behaviours of materials and the impact of these on production methods and technologies
- types and methods of testing specific to different materials, including strength and performance under different conditions
- design- and production-related technologies applicable to all stages of a project, and their impact on materials selection and output variables
- key features, costs, efficiencies and technical application of current and emerging technologies, including:
 - CNC operations
 - 3D printing
 - foundries and casting
 - robotics
 - laser cutting
 - water-jet cutting
- how to structure and present testing program results and recommendations
- the expertise and specialised equipment or technologies required for different materials, and the impact of these on project constraints including timeframes and budgets
- non-traditional materials that complement or enhance the overall design.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - design briefs
 - range of complex materials for testing
 - industry-standard technologies suitable for design and production
 - information technology for research and design presentation.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0601ab95-583a-4e93-b2d4-cfb27b03ed73>