



Australian Government

MSFFDM4005 Design, construct and test jigs

Release: 1

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Modification History

Release 1. Unit code and Application changed. Element and Performance Criteria changed. Range of Conditions removed and relevant content moved to Assessment Requirements. Assessment Requirements changed to remove duplication with Performance Criteria. Supersedes and is not equivalent to MSFDN4004 Design, construct and test jigs and MSFFDT4015 Produce templates and jigs for custom-made furniture.

Application

This unit describes the skills and knowledge required to design, construct and test jigs required for manufacture, assembly, construction and testing of products. It covers all jigs, whether temporary or highly engineered, designed manually or through use of computer-aided design tools.

This unit applies to individuals required to design, construct and test jigs as part of their job role in design, manufacturing and similar workplaces, either alone or as part of an internal or external team.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Competency Field

Workshop practice

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 production requirements	1.1 Identify and follow work health and safety requirements, including personal protection needs, throughout the work 1.2 Gather information about item to be produced from work documentation and liaise with others involved in design and production process 1.3 Identify and review constraints and opportunities for jig design from requirements and workplace procedures
2. Design jig	2.1 Develop ideas for jig design based on knowledge of materials and production processes 2.2 Refine jig design through testing and experimentation to meet

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	requirements 2.3 Make accurate calculations to support effective jig design 2.4 Plan a production process that works effectively with jig design 2.5 Produce jig design based on testing and production process investigation undertaken 2.6 Specify materials for jig construction from design process
3. Construct jig	3.1 Select tools and equipment suited to the jig design 3.2 Construct jig in accordance with design and within tolerances using techniques that match requirements
4. Test jig	4.1 Use jig to produce sample and determine its adherence to set tolerances 4.2 Adjust jig and design specifications to meet production requirements in response to testing

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but are not explicit in the performance criteria.

- Numeracy skills to interpret technical information and perform basic calculations including measurements=.
- Reading skills to interpret job requirements.

Other foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Release 1. Supersedes and not equivalent to MSFDN4004 Design, construct and test jigs and MSFDT4015 Produce templates and jigs for custom-made furniture.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MSFFDM4005 Design, construct and test jigs

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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:

- successfully design, construct and test jigs that operate within acceptable production tolerances for two projects, including one moving jig.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- how to interpret detailed product specifications and technical drawings
- characteristics, uses and limitations of materials used for jig construction
- construction techniques relevant to the chosen jig material
- processes for testing jig design
- machine technical specifications, including the acceptable criteria for related jigs
- mathematical procedures for taking measurements and making calculations for jig 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:
 - product specifications and drawings
 - drawing materials or equipment for jig design
 - jig construction materials
 - construction machinery, equipment and hand tools.

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

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