



**Australian Government**

# **MSFDN5001 Generate and transfer complex computer-aided drawings and specifications**

**Release: 1**

# MSFDN5001 Generate and transfer complex computer-aided drawings and specifications

## Modification History

Release 1 - New unit of competency

## Application

This unit of competency covers preparing complex drawings using computer-aided techniques and capabilities, including three-dimensional modelling, exploded assembly drawings and conversion of drawings for computer numerically controlled (CNC) applications.

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

## Pre-requisite Unit

## Competency Field

## Unit Sector

Furnishing design

## Elements and Performance Criteria

| Elements describe the essential outcomes. |                                   | Performance criteria describe the performance needed to demonstrate achievement of the element. |                                                                                                                                                                 |
|-------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                         | Create exploded assembly drawings | 1.1                                                                                             | Drawing preparations, including drawing name, labelling information, dimensions, specifications and information management requirements, are obtained/completed |
|                                           |                                   | 1.2                                                                                             | Three-dimensional models are prepared for all components                                                                                                        |
|                                           |                                   | 1.3                                                                                             | Perspective view of the model is created and confirmed                                                                                                          |
|                                           |                                   | 1.4                                                                                             | Model is exploded so that all components are visible                                                                                                            |
|                                           |                                   | 1.5                                                                                             | All individual components are labelled in accordance with enterprise requirements                                                                               |
|                                           |                                   | 1.6                                                                                             | Quality checks are completed to ensure accuracy of outcomes                                                                                                     |

|   |                                       |     |                                                                                                                                               |
|---|---------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                       | 1.7 | Drawings are stored in accordance with enterprise requirements                                                                                |
| 2 | Create job sheets                     | 2.1 | Preparations, including file storage, product coding, inventory information and drawing management requirements, are identified and completed |
|   |                                       | 2.2 | Job sheet template is set up in accordance with enterprise requirements and practices                                                         |
|   |                                       | 2.3 | Necessary orthographic views are created and dimensioned                                                                                      |
|   |                                       | 2.4 | Sequencing of machine operations and operator requirements, including work health and safety (WHS) are identified and listed                  |
|   |                                       | 2.5 | Draft job sheets are prepared, reviewed, tested and amended to enterprise requirements                                                        |
|   |                                       | 2.6 | Job sheets are stored in accordance with enterprise requirements                                                                              |
| 3 | Convert drawings for CNC applications | 3.1 | Conversion requirements are identified and confirmed from the CNC machine specifications                                                      |
|   |                                       | 3.2 | Layers and additional information required for final conversion are created                                                                   |
|   |                                       | 3.3 | Drawing entities are assigned to the relevant layers                                                                                          |
|   |                                       | 3.4 | Conversion to the required file type is completed                                                                                             |
|   |                                       | 3.5 | Converted file is stored in accordance with enterprise requirements                                                                           |

## Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency. Detail on appropriate performance levels for each furnishing unit of competency in reading, writing, oral communication and numeracy utilising the Australian Core Skills Framework (ACSF) are provided in the Furnishing Training Package Implementation Guide.

## Range of Conditions

Specifies 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. Range is restricted to essential operating conditions and any other variables essential to the work environment.

- |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit context includes:</b>                  | <ul style="list-style-type: none"><li>• WHS requirements, including legislation, building codes, material safety management systems, hazardous and dangerous goods codes, and local safe operating procedures or equivalent</li><li>• work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, manual handling procedures and organisation insurance requirements</li><li>• work requires individuals to demonstrate conceptual, analytical and organisational ability, judgement and problem-solving applied under broad guidance within routine and non-routine situations</li><li>• work involves enterprise and client-initiated ideas or requests</li></ul> |
| <b>Preparing complex drawings includes:</b>    | <ul style="list-style-type: none"><li>• identification, selection and use of computer-aided techniques and capabilities, including three-dimensional modelling, exploded assembly drawings and conversion of drawings for CNC applications</li><li>• researching software trends and developments</li><li>• generating and presenting ideas</li><li>• liaising with client and/or other functional areas</li><li>• compiling information</li></ul>                                                                                                                                                                                                                                                                              |
| <b>Personal protective equipment includes:</b> | <ul style="list-style-type: none"><li>• that prescribed under legislation, regulations and enterprise policies and practices</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Information and procedures include:</b>     | <ul style="list-style-type: none"><li>• customer requirements</li><li>• work specifications</li><li>• product catalogues and style manuals or equivalent</li><li>• inventory systems and records</li><li>• organisation work procedures and sequencing arrangements</li><li>• legislation/regulations/national and industry codes and practices relevant to the product</li><li>• quality and Australian Standards and procedures</li></ul>                                                                                                                                                                                                                                                                                     |

## Unit Mapping Information

Supersedes and is equivalent to LMFDN5001B Generate and transfer complex computer-aided drawings and specifications

## 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 MSFDN5001 Generate and transfer complex computer-aided drawings and specifications**

## **Modification History**

Release 1 - New unit of competency

## **Performance Evidence**

- Interpret work order and locate and apply relevant information
- Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment
- Identify materials used in the work process
- Follow work instructions, operating procedures and inspection processes to:
  - minimise the risk of injury to self or others
  - prevent damage to goods, equipment and products
  - maintain required production output and product quality
- Create a minimum of two (2) exploded assembly drawings, including:
  - preparation of three-dimensional models
  - creation of perspective views
  - exploding the models to expose all components
  - labelling of all components
  - management and storage of drawings
- Create a minimum of two (2) confirmed job sheets which have the necessary orthographic views and all required management and inventory information
- Convert a minimum of two (2) drawings for CNC application, including the creation of layers, assignment of drawing entities and the protection and storage of converted files
- Use mathematical ideas and techniques to correctly complete measurements, calculate area and estimate material requirements
- Communicate ideas and information to enable confirmation of work requirements and specifications and the reporting of work outcomes and problems, interpret basic plans and follow safety procedures
- Avoid backtracking, work flow interruptions or wastage
- Work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity
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## **Knowledge Evidence**

- Design core and professional practices
- Ergonomic principles for furniture design and manufacture
- Type, range, uses and limitations of contemporary computer-aided design (CAD) software
- Types, range, uses and limitations of contemporary CAD applications

- Industry product ranges and detailed knowledge of furniture construction processes
- Types of construction materials and their characteristics, uses and limitations
- Materials, trims, accessories and their properties and characteristics
- Enterprise information management systems and processes related to drawings
- Relevant WHS legislation, regulatory requirements and codes of practice

## Assessment Conditions

- Assessors must:
  - hold training and assessment competencies as determined by the National Skills Standards Council (NSSC) or its successors
  - have vocational competency in the furnishing industry at least to the level being assessed with broad industry knowledge and experience, usually combined with a relevant industry qualification
  - be familiar with the current skills and knowledge used and have relevant, current experience in the furnishing industry.
- Assessment methods must confirm consistency of performance over time rather than a single assessment event and in a range of workplace relevant contexts.
- Assessment must be by observation of relevant tasks with questioning on underpinning knowledge and, where applicable, multimedia evidence, supervisor's reports, projects and work samples.
- Assessment is to be conducted on single units of competency or in conjunction with other related units of competency. Foundation skills are integral to competent performance in the unit and should not be assessed separately.
- Assessment must occur on the job or in a workplace simulated facility with relevant process, equipment, materials, work instructions and deadlines.
- Access is required to real or appropriately simulated situations involving the application of drawing and drafting techniques and to the related computing, operational and inventory support systems.

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