



**Australian Government**

# **MSFFT5007 Optimise computer numerically controlled (CNC) operations**

**Release: 1**

# MSFFT5007 Optimise computer numerically controlled (CNC) operations

## Modification History

Release 1 - New unit of competency

## Application

This unit of competency covers analysing production orders, production histories and machine capabilities and manipulating CNC machine control programs to optimise production performance in the furnishing industry. It requires the integration of process machines that may normally function on a stand-alone basis.

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

## Pre-requisite Unit

## Competency Field

## Unit Sector

Furnishing Technology

## Elements and Performance Criteria

| Elements describe the essential outcomes. |                                       | Performance criteria describe the performance needed to demonstrate achievement of the element. |                                                                                                             |
|-------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 1                                         | Identify optimal operating conditions | 1.1                                                                                             | The production potential of the components of the system are identified                                     |
|                                           |                                       | 1.2                                                                                             | Production orders and plans are analysed to identify sustained production requirements                      |
|                                           |                                       | 1.3                                                                                             | Integration options are identified and analysed to ascertain the optimal integration model                  |
|                                           |                                       | 1.4                                                                                             | Software and programming requirements to attain and sustain optimal integration are identified and recorded |
| 2                                         | Prepare for software installation     | 2.1                                                                                             | Program format and operational intent are accurately determined and required applications identified        |
|                                           |                                       | 2.2                                                                                             | Specifications are checked for required operating                                                           |

|   |                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                                  | conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|   | 2.3                                                              | Program instructions are checked for compliance with specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|   | 2.4                                                              | Software timers are set to specification, where required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 3 | Install and integrate automatic process machine control programs | 3.1 Appropriate program loading technique is selected<br>3.2 External loading devices are correctly connected to automatic process machine control systems<br>3.3 Machine control system is placed in correct operational mode to accept program loading<br>3.4 Program is downloaded in accordance with manufacturers' recommended procedure and enterprise requirements<br>3.5 Checks are made during and after downloading to ensure accurate and complete data transfer<br>3.6 External program loading devices and connections are disconnected from process and machine control system<br>3.7 Integration protocols and actions are completed |
| 4 | Commission automatic process and machine control programs        | 4.1 Operation of the production system using the programs is observed<br>4.2 Outputs are checked and measured for compliance with specifications<br>4.3 External inputs are checked for compliance with specifications according to specified procedures<br>4.4 Total operation is checked for compliance with specifications where applicable<br>4.5 Location of program master copy storage is confirmed                                                                                                                                                                                                                                          |

## 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>• work health and safety (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 and analytical ability, discretion, judgement and problem solving and is generally performed without other qualified assistance</li><li>• customers are normally internal</li></ul> |
| <b>Production systems include:</b>             | <ul style="list-style-type: none"><li>• CNC machining</li><li>• processing centres</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>• work procedures/instructions</li><li>• manufacturer specifications and instructions</li><li>• standard forms of workplace process and procedures</li><li>• organisation work specifications and requirements</li><li>• legislation, regulations and codes of practice</li><li>• quality and Australian Standards and procedures</li></ul>                                                                                                                                                                                                                                                                                                                           |

## Unit Mapping Information

Supersedes and is equivalent to LMFFT5010B Optimise CNC operations.

## 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 MSFFT5007 Optimise computer numerically controlled (CNC) operations

## Modification History

Release 1 - New unit of competency

## Performance Evidence

- Collect, organise and understand information related to furnishing work instructions and work orders and safety procedures
- 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
- Optimise production and suggest improvements to CNC operations and, where authorised, negotiate changes on a minimum of two (2) occasions with at least one (1) involving a CNC machining and processing centre
- Use mathematical ideas and techniques to correctly complete measurements, calculate area and estimate material requirements
- Lead others and work effectively to improve production quality and outcomes
- 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
- Use workplace technology related to the coordination, including communication equipment, time and management aids and other measuring devices
- 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 and encourage participation of employees in the planning of work activities and changes

## Knowledge Evidence

- Company operating procedures, including procedures for programming CNC equipment
- Operation requirements of equipment and work systems to be programmed

## 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 CNC production equipment, software

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