



Australian Government

MSFFM3022 Set up, operate and maintain computer numerically controlled (CNC) machining and processing centres

Release: 1

MSFFM3022 Set up, operate and maintain computer numerically controlled (CNC) machining and processing centres

Modification History

Release 1 - New unit of competency

Application

This unit of competency covers setting up, operating and maintaining CNC machining and processing centres to produce furniture or components.

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

Pre-requisite Unit

Competency Field

Unit Sector

Furniture Making

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Prepare for work	1.1	Work instructions are used to determine job requirements, including design, quality, materials, equipment and quantities
		1.2	Work health and safety (WHS) requirements, including personal protection needs, are observed throughout the work
		1.3	Material for machining is selected and inspected for appropriate quality
		1.4	Procedures are determined for minimising waste material
		1.5	Procedures are identified for maximising energy efficiency while completing the job
2	Set up for machining and processing	2.1	CNC program is set to job requirements

- | | | |
|---|---|--|
| | 2.2 | Safety equipment, including emergency stops, gauges, guards and controls are checked |
| | 2.3 | Machining and processing settings and adjustments are made in accordance with job requirements and machining and processing and tool manufacturer instructions |
| | 2.4 | Machining and processing, cutting tools and jigs are checked for safe and effective operation |
| | 2.5 | Trial runs are conducted to check machining and processing operation and quality of finished work |
| | 2.6 | Final adjustments are made to CNC programs and equipment according to workplace procedures |
| 3 | Operate machining and processing centres | |
| | 3.1 | Machining and processing centres are operated and monitored to ensure product quality and output |
| | 3.2 | Waste quantities are checked and minimised |
| | 3.3 | Problems with the required work are identified and reported to appropriate persons |
| | 3.4 | Items that do not meet quality requirements are repaired, recycled or discarded according to workplace procedures |
| | 3.5 | Any authorised changes in working procedures are followed |
| 4 | Finalise operation and maintain equipment | |
| | 4.1 | Work area is cleaned, hand and/or power tools and equipment are cleaned, maintained and stored in accordance with workplace procedures |
| | 4.2 | Machinery is cleaned and left in a safe mode |
| | 4.3 | Faulty and/or defective equipment is tagged and reported in accordance with workplace practices |
| | 4.4 | Unused hardware is collected and stored for re-use or disposal following workplace procedures |
| | 4.5 | Waste and scrap materials are dealt with following workplace procedures |

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.

- | | |
|--|--|
| CNC machining and processing centres include | <ul style="list-style-type: none">• a three axis machining centre• multi-tasking machining centres• flat-bed routers and mortise |
| Materials to be machined and processed include: | <ul style="list-style-type: none">• solid timber• manufactured board |
| Unit scope includes: | <ul style="list-style-type: none">• reading and interpreting drawings• selecting and installing tooling• setting jigs and fixtures• programming (sub-programs and parametrics)• performance of computer-aided design (CAD)/computer-aided manufacture (CAM) functions• downloading and storage of data to complete detailed profiling• other specified operations |
| Unit context includes: | <ul style="list-style-type: none">• WHS requirements, including legislation, building codes, material safety management systems, hazardous substances and dangerous goods code, and local safe operating procedures• work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, manual handling procedures and organisation insurance requirements• work requires individuals to demonstrate some discretion, judgement and problem solving in the set up and operation of machining and processing centres• competency may be demonstrated in workplaces involved in the manufacture of solid timber furniture, domestic furniture, commercial furniture, kitchen and bathroom cabinets and/or furniture components |

Tools and equipment include:

- stand-alone or integral computing systems
- machine-specific tools

Personal protective equipment includes:

- that prescribed under legislation, regulations and enterprise policies and practices

Information and procedures include:

- workplace procedures relating to the use of tools and equipment
- work instructions, including job sheets, cutting lists, plans, drawings and designs
- workplace procedures relating to reporting and communication
- manufacturer specifications and operational procedures

Unit Mapping Information

Supersedes and is equivalent to LMFFM3031B Set up, operate and maintain CNC machining and processing centres.

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 MSFFM3022 Set up, operate and maintain computer numerically controlled (CNC) machining and processing centres

Modification History

Release 1 - New unit of competency

Performance Evidence

- Locate, interpret 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 practices to:
 - minimise the risk of injury to self or others
 - prevent damage to goods, equipment or products
 - maintain required production output and product quality
- Identify, set up and operate CNC machining and processing centre equipment to complete detailed profiling, including:
 - development and application of sub-program
 - development and application of parametric program, and
 - application of CAD/CAM functions
- Conduct operator maintenance on the machining and processing centre equipment
- 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
- Minimise wastage of resources, including materials, time and money
- Work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity

Knowledge Evidence

- Types, characteristics, uses and limitations of CNC machining and processing centres
- CNC theory, practices and techniques
- Characteristics of materials used and uses of products produced
- Work flow processes
- Procedures for reporting materials, product or equipment faults

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 controlled equipment, standard operating procedures, unprocessed materials.

Links

Companion Volume implementation guides are found in VETNet -

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