



**Australian Government**

# **FWPTMM5205 Optimise CNC operations**

**Release: 2**

## FWPTMM5205 Optimise CNC operations

### Modification History

| Release   | Comments                                                                                                                                                                                                                                                                |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Release 2 | This version released with FWP Forest and Wood Products Training Package Version 4.0.                                                                                                                                                                                   |
| Release 1 | <p>This version replaces equivalent unit FPITMM5201B Assess product feasibility of designs, which was first released with FPI11 Forest and Forest Products Training Package Version 2.2.</p> <p>This is the first release of this unit in the new standards format.</p> |

### Application

This unit of competency describes the skills and knowledge required to optimise the overall performance of computer numerical control (CNC) sizing machines and CNC machining and processing centres, to maximise production output in a timber manufacturing facility.

The unit applies to individuals who work as managers or supervisors in timber manufacturing facilities. They generally demonstrate autonomy, judgement and limited responsibility in known or changing contexts and within established parameters.

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

### Pre-requisite Unit

Nil

### Unit Sector

Timber Manufactured Products

Timber Merchandising

### Elements and Performance Criteria

| Elements                                         | Performance Criteria                                                                                   |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i> |
| 1. Establish optimal                             | 1.1 Review workplace health and safety requirements and emergency                                      |

| Elements                                                            | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>                    | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| operating conditions                                                | <p>procedures, identify and report hazards and use personal protective equipment according to workplace requirements throughout the optimisation process</p> <p>1.2 Assess production potential of system components</p> <p>1.3 Analyse production orders and plans to identify sustained production requirements</p> <p>1.4 Identify and analyse integration options to establish optimal integration model</p> <p>1.5 Assess and record software and programming requirements to attain and maintain optimal integration</p>                                                                         |
| 2. Prepare for software installation                                | <p>2.1 Diagnose program format and operational purpose and identify specified applications</p> <p>2.2 Check specifications for intended operating conditions</p> <p>2.3 Check program instructions for compliance with specifications</p> <p>2.4 Counter set software timers to specification</p>                                                                                                                                                                                                                                                                                                      |
| 3. Install and integrate automatic process machine control programs | <p>3.1 Select appropriate program loading technique</p> <p>3.2 Connect external loading devices correctly to automatic process machine control system</p> <p>3.3 Place machine control system in a correct operational mode to accept program loading</p> <p>3.4 Download program according to manufacturer recommended procedure</p> <p>3.5 Check during and after downloading to ensure accurate and complete data transfer</p> <p>3.6 Disconnect external program loading devices and connections from process and machine control system</p> <p>3.7 Complete integration protocols and actions</p> |
| 4. Commission automatic process and machine control program         | <p>4.1 Monitor operation of equipment using the program for accuracy and safe performance</p> <p>4.2 Measure and check outputs for compliance with specifications and ensure maximum output</p> <p>4.3 Check external inputs for compliance with specifications</p> <p>4.4 Check total operation for compliance with specifications and</p>                                                                                                                                                                                                                                                            |

| Elements                                         | Performance Criteria                                                                                                                                                                                       |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                     |
|                                                  | resolve any issues<br>4.5 Identify location for storage of program master copy and store accordingly<br>4.6 Record installation and commissioning process and problems and report to appropriate personnel |

## Foundation Skills

*This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.*

| Skill                      | Description                                                                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reading                    | <ul style="list-style-type: none"> <li>Interpret detailed and sometimes unfamiliar instructions for installing CNC software and commissioning machinery</li> </ul>                                 |
| Numeracy                   | <ul style="list-style-type: none"> <li>Interpret sizing specifications for machines, and monitor the operation of commissioned machines to ensure accurate calibration</li> </ul>                  |
| Navigate the world of work | <ul style="list-style-type: none"> <li>Understand main tasks, responsibilities and boundaries of own role</li> </ul>                                                                               |
| Interact with others       | <ul style="list-style-type: none"> <li>Use modes of communication suitable for the purpose to confirm and clarify understanding</li> </ul>                                                         |
| Get the work done          | <ul style="list-style-type: none"> <li>Use computerised operating controls for CNC machines to monitor accurate and safe performance</li> <li>Recognise and respond to routine problems</li> </ul> |

## Unit Mapping Information

| Code and title current version     | Code and title previous version    | Comments                                                                | Equivalence status |
|------------------------------------|------------------------------------|-------------------------------------------------------------------------|--------------------|
| FWPTMM5205 Optimise CNC operations | FWPTMM5205 Optimise CNC operations | Updated workplace health and safety requirements and foundation skills; | Equivalent unit    |

|           |           |                                                           |  |
|-----------|-----------|-----------------------------------------------------------|--|
| Release 2 | Release 1 | clarified the intent of unit and assessment requirements. |  |
|-----------|-----------|-----------------------------------------------------------|--|

## Links

Companion Volumes, including Implementation Guides, are available at VETNet: -  
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

# Assessment Requirements for FWPTMM5205 Optimise CNC operations

## Modification History

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## Performance Evidence

An individual demonstrating competency in this unit must satisfy all of the elements and performance criteria of this unit. There must be evidence that, on at least one occasion, the individual has:

- installed and commissioned computer numerical control (CNC) integrated software to attain and sustain optimal integration in CNC sizing machines or CNC machining and processing centres to produce different outputs
- checked that machine is operating safely according to its intended purpose and program and to maximum output
- completed a detailed and accurate report, for each installation, on the installation and commissioning process and problems encountered.

## Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- health and safety hazards or risks, including personal protective equipment (PPE), related to optimising CNC operations as identified through risk assessments, manufacturer technical information, regulations and industry health and safety guides
- workplace procedures for optimising CNC operations:
  - health and safety requirements
  - installing software and commissioning machinery
  - recording and reporting on installation and commissioning processes and problems
- the CNC software:
  - program format and operational purpose

- compatibility of two or more sets of software
- system functions and capabilities
- methods to install and collate two or more sets of software information established through a common identifier
- methods to maximise the program to optimise machine output
- methods to commission machinery to operational specification
- requirements for safe storage of program master copy
- the machinery being commissioned:
  - operational purpose and sizing specifications
  - maximum production capacity
  - methods to monitor the operation of commissioned machines and check calibration.

## Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
  - skills must be demonstrated in an environment that accurately represents workplace conditions
- resources, equipment and materials:
  - CNC sizing machines and CNC machining and processing centres
  - CNC software programs
  - PPE suitable for optimising CNC machines and operations
- specifications:
  - production plans and information on production orders
  - machine sizing specifications
  - instructions for installing CNC software and commissioning machinery
  - template reports for installation and commissioning processes and problems
  - workplace procedures for installing software and commissioning machinery, including health and safety and emergency procedures.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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