Modification history

Release	Comments
Release 1	This version released with FWP Forest and Wood Products Training Package Version 5.0.

FWPCOT3XXX	Load and prove operating program for computer numerical controlled (CNC) machine
Application	This unit of competency describes the skills and knowledge required to load and prove a program for a computer numerical controlled (CNC) machine. This includes preparing for work, locating the CNC program file, checking the program for currency, loading the program correctly into the machine controller, checking for and dealing with fault/error messages, following proving/editing procedures and saving edited programs. The unit applies to individuals who load and prove programs for CNC machines in a timber processing and manufacturing facility. All work must be carried out to comply with workplace procedures, according to state/territory health and safety regulations, legislation and standards that apply to the workplace. No occupational licensing, legislative or certification requirements apply to this unit at the time of publication.
Prerequisite Unit	Nil
Unit Sector	

Elements	Performance Criteria
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Prepare to load and verify program for CNC machinery	1.1 Review work order and workplace health and safety and environmental protection procedures to determine job requirements and, where required, seek clarification from appropriate personnel 1.2 Identify and report hazards and use personal protective equipment according to workplace health and safety requirements to maintain safe work practices 1.3 Use the correct control program and ensure it is correctly loaded into machine controller 1.4 Call up the program and deal with any error messages or faults according to workplace procedures and manufacturer instructions 1.5 Confirm program integrity according to workplace procedures
2. Load program	2.1. Carry out program loading and checking activities according to workplace procedures and manufacturer instructions 2.2. Store program media away from contaminants or electromagnetic sources according to workplace procedures 2.3. Return operating programs to correct location on completion of machining activities

Elements	Performance Criteria
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
3. Prove program for CNC machinery	3.1. Confirm that machine and program operate safely and correctly by applying appropriate proving procedures and checking datums, tool offsets, tool change positions, tool selection, tool cutter paths and that all operations are carried out to program co-ordinates, according to machine type and manufacturer instructions
	3.2. Adjust machine and program operating parameters to optimise outcomes to be achieved
	3.3. Load and correctly set up all associated equipment
	3.4. Check that all safety mechanisms are in place and that the machine is set correctly for the required operations
	3.5. Respond to problems within scope of responsibility or report problem to appropriate personnel
	3.6 Save and store edited programs according to workplace procedures

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	• Extract key information from workplace and reference documents on loading and proving programs for CNC machines
Writing	• Prepare routine written reports that inform others on the outcomes of work activities
Oral Communication	• Use speaking and listening skills to share information with other CNC machine operators about loading and proving programs for CNC machines
Numeracy	• Take machine readings to verify machines are operating correctly
	• Apply numerical skills to describe tool datums, positions, lengths, offsets and radius compensation
Navigate the world of work	• Understand main tasks, responsibilities and boundaries of own role
Interact with others	• Use modes of communication suitable to purpose to confirm and clarify understanding
Get the work done	• Recognise and respond to routine problems

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FWPCOT3XXX Load and prove operating program for computer numerical controlled (CNC) machine	Not applicable	New Unit	Not applicable

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

TITLE	**Assessment requirements for FWPCOT3XXX Load and prove operating program for computer numerical controlled (CNC) machine**

Performance Evidence

An individual demonstrating competency must satisfy all the elements and performance criteria in this unit. There must be evidence that, on at least on one occasion, the individual has loaded and proved the operating program for a computer numerical controlled [CNC] machine and has:
- worked safely including followed workplace health and safety procedures
- selected the correct CNC program file for the job
- loaded the operating program
- proved the operating program
- checked that all safety mechanisms are in place and that the machine is set correctly for the required operations.

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
- purpose, features, operating parameters, components and operation CNC machines
- benefits of CNC machines
- type of products produced using CNC machines
- operational program software
- computing coding language used in the CNC programs being used
- function keys and operating system of the machine computer control system being operated
- procedures for accessing computer-controlled programs installed in the machine controller, including:
    - posting appropriate program to the machine
    - selecting tool specified by the program and for the material to be machined
    - selecting appropriate speeds and feeds
- hazards associated with loading and proving programs for CNC machines
- safety precautions to be taken when loading and proving operating programs for CNC machines
- methods for:
    - starting and stopping the machine in normal and emergency situations
    - handling and storing program files
    - loading, executing, editing and exiting operating programs
    - setting machine datums for each machine axis being used
    - identifying and dealing with error messages and faults on program or computer controlled machine
    - placing the machine into correct operating mode and accessing program edit facility, in order to enter tooling data such as tool datums, positions, lengths, offsets and radius compensation
    - using tool posts, magazines and carousels and identifying the tools in relationship to the operating program
    - conducting trial runs, using single block run, dry run and feed and speed override controls
    - interpreting first and third angle drawings, metric measurements, workpiece reference points and system of tolerancing
    - checking before machine is operated in full program run mode
    - expressing machine tool and workpiece movements in terms of Cartesian coordinates
- purpose of tool compensation, including tool diameter, wear, nose radius, tool length
- industry standard profiles, lengths, cross sections and tolerances and applicable terminology .

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:
- physical conditions
    - skills must be demonstrated in a timber processing or manufacturing facility or an environment that accurately represents workplace conditions
- resources, equipment and materials:
    - CNC machine

Assessment Conditions
- CNC operating program   - PPE for loading and proving operating programs for CNC machines   - template documents for recording outcomes of setting up and calibration activities   - specifications: - manufacturer instructions for loading and proving program for CNC machine   - work order with specific instructions for loading and proving program for CNC machine   - workplace procedures for loading and proving program for CNC machine.   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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