

Title	Demonstrate knowledge of fundamentals of process controls used in wood manufacturing industries		
Level	3	Credits	10

Purpose	People credited with this unit standard are able to, in wood manufacturing industries: demonstrate knowledge of process control systems used, control methods used in continuous processes, logic diagrams, permissives, interlocks, sensors, and actuators; describe transducers and actuators, and control loops; and demonstrate knowledge of and use of process and control diagrams, and distributed control system displays.
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Classification	Wood Manufacturing - Generic Skills > Wood Manufacturing Foundation Skills
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Available grade	Achieved
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Guidance Information

1 Definitions

Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider wood manufacturing industry as examples of best practice.

Wood manufacturing industries include pulp and paper manufacturing, wood panels manufacture, solid wood processing, and wood product manufacturing.

Workplace procedures refer to documented policies and procedures set by the organisation carrying out the work, and to documented or other directions provided to staff, and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, quality assurance procedures, product quality specifications, references, approved codes of practice, housekeeping standards, environmental considerations, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the industry sector.

2 Assessment information

All activities and evidence must meet workplace procedures and accepted industry practice.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of process control systems used in wood manufacturing industries.

Range stand alone, integrated.

Performance criteria

1.1 Purpose of process control is explained in terms of controlling process quantity, producing a control response, and applying corrective action.

1.2 Components of control charts are identified in terms of the information they provide for quality control.

Range control variable, control value, upper and lower control limits.

1.3 Types of equipment that provide feedback data for process control are identified in terms of their function in the control loop.

Range sensors, actuators, measuring elements, indicators, transmitters.

Outcome 2

Demonstrate knowledge of control methods used in continuous processes in wood manufacturing industries.

Performance criteria

2.1 Purpose of simple control loop is defined in terms of measurement, specification of requirement, and comparison of actual and measured values.

2.2 Process control relationship in integrated systems is identified in terms of distributed intelligence, process computer, and programmable logic controller (PLC) systems.

2.3 Control process in computer based systems is described in terms of supervisory programmes.

2.4 Continuous process problems are identified as either process or controller sourced.

Outcome 3

Describe transducers and actuators used in wood manufacturing industries.

Performance criteria

3.1 Operation of transducers is described.

Range may include but is not limited to – pressure, flowrate, temperature, pH, mass, weight, force, level, consistency, humidity.

3.2 Operation of pneumatic actuators is described in terms of 'fail open' and 'fail closed'.

Outcome 4

Describe control loops used in wood manufacturing industries.

Performance criteria

- 4.1 Differences between on and off control and continuous control are described.
- 4.2 Stages used in a control system to manage a heating system are described.

Outcome 5

Demonstrate knowledge of logic diagrams, permissives, interlocks, sensors, and actuators in wood manufacturing industries.

Performance criteria

- 5.1 Purpose and use of interlocks and permissives are explained.
- 5.2 Operation of PLCs is explained with relation to sensors and actuators.
- 5.3 Actuation of electric motors by a PLC is described.
- 5.4 Types of sensor devices are identified.

Range may include but is not limited to – hand operated, mechanically operated, electrically operated.

Outcome 6

Demonstrate knowledge of and use process and control diagrams in wood manufacturing industries.

Performance criteria

- 6.1 Purpose of process and control diagrams is described in terms of process flow and process components.
- 6.2 Process and control diagrams are used to explain specific wood manufacturing processes.

Outcome 7

Demonstrate knowledge of and use of distributed control system (DCS) displays in wood manufacturing industries.

Performance criteria

- 7.1 Types of DCS displays are differentiated in terms of their uses in a specified wood manufacturing industry.

Range control and information graphics with associated sub pictures.

7.2 Components, interactions, and process flows are identified in terms of their DCS symbols.

Range stops, starts, pumps, meters, valves, switches, high and low sensors.

7.3 DCS displays are navigated in accordance with manufacturer's instructions.

Range navigation includes following a process across multiple pages.

7.4 DCS charts are interpreted and values that are trending outside control parameters are identified.

7.5 Potential causes of deviations from process values are identified from DCS displays.

Planned review date	31 December 2024
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	30 November 2000	31 December 2020
Review	2	18 December 2006	N/A
Review	3	28 May 2020	N/A

Consent and Moderation Requirements (CMR) reference	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.