

Title	Demonstrate and apply knowledge of computerised manufacturing for engineering fabrication		
Level	2	Credits	4

Purpose	<p>This entry-level unit standard, intended for off job assessment, is for people working in or preparing to work in engineering fabrication trades.</p> <p>People credited with this unit standard are able to demonstrate knowledge of computerised manufacturing for engineering fabrication, and apply computerised manufacturing to produce a fabrication component.</p>
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Classification	Mechanical Engineering > Engineering - Fabrication
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Available grade	Achieved
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Prerequisite	Unit 29650, <i>Demonstrate knowledge of the safe use of powered equipment in a mechanical engineering or fabrication workshop</i> , or demonstrate equivalent knowledge and skills.
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Guidance Information

- 1 References
Health and Safety at Work Act 2015.
- 2 Definitions
CAD – Computer Aided Design.
CAM – Computer Aided Manufacturing.
CNC – Computer Numerical Control.
DNC – Distributive Numerical Control.
Workplace procedures – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.
- 3 Related unit standards
 This unit standard is one of an introductory CNC fabrication set:
 - Unit 30473, *Demonstrate and apply knowledge of computerised manufacturing for engineering fabrication* (Level 2), an introductory unit standard that covers basic computer controlled fabrication machine knowledge and application to prepare candidates for employment.

- Unit 30474, *Set up and operate a CNC machine for engineering fabrication* (Level 3), a unit standard that covers simple setting and operation of computer controlled fabrication machines.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of computerised manufacturing for engineering fabrication.

Performance criteria

- 1.1 Computerised material fabrication systems are described in terms of purpose, machine functions, machine configuration, component identification and operation, and software function.
- Range evidence is required of a minimum of one cutting machine system and one other fabrication system; examples of machines are – sheet metal benders, punching machines, cutters (laser, plasma, waterjet), shears, press brakes; examples of fabrication system functions are – design, layout, bending, cutting, drilling, marking, surface preparation, assembly.
- 1.2 The advantages of computerised material fabrication systems compared to manually controlled fabrication machines are described.
- 1.3 The interaction between CAD, CAM, and DNC is explained in relation to production of components using CNC.
- Range CAD software options, file formats and drawing requirements; conversion to machine code, CAD/CAM software.
- 1.4 Tool and workpiece movements are expressed in terms of Cartesian coordinates, and the purpose of the reference point (grid zero) is explained.

Outcome 2

Apply computerised manufacturing to produce a fabrication component.

Performance criteria

- 2.1 Workplace safety procedures are followed.
- Range examples are – use of personal protective equipment, checking of equipment for faults, use of extraction equipment.
- 2.2 CAD and CAM files are prepared and uploaded to the machine and programme confirmed with supervisor, in accordance with workplace procedures.
- 2.3 Component material is loaded and positioned in accordance with workplace procedures.

2.4 Component is produced in accordance with workplace procedures.

Replacement information	This unit standard replaced unit standard 25711.
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Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 August 2017	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.