Title	**Demonstrate knowledge of basic CNC concepts and applications in the fabrication industry**		
Level	**3**	**Credits**	**4**

Purpose	This unit standard is for use in training of fabrication trades and covers introductory knowledge of the application of Computer Numerical Control (CNC) in the fabrication industry. People credited with this unit standard are able to demonstrate knowledge of basic CNC concepts and applications of CNC controlled fabrication machines.

Classification	Mechanical Engineering > Engineering - Fabrication

Available grade	Achieved

Entry information	
Critical health and safety prerequisites	Candidates must be able to safely carry out basic fabrication operations. This could be evidenced by credit for standards such as Unit 25075, *Perform basic fabrication operations under supervision,* or demonstrate equivalent knowledge and skills.

Explanatory notes

Definitions
CAD – Computer Aided Design.
CAM – Computer Aided Manufacturing.
CNC – Computer Numerical Control.
DNC – Distributive Numerical Control.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of basic CNC concepts.

Evidence requirements

1.1 The major components and accessories of CNC machines are identified and their functions outlined.

Range controllers, memory, machines, program, inputs, outputs, tools, motors drives.

1.2 Typical programmable functions are identified.

Range evidence of knowledge of 5 user-programmable functions is required.

1.3 Tool and workpiece movements are expressed in terms of Cartesian coordinates, and the purpose of the reference point (grid zero) is explained.

1.4 The interaction between CAD, CAM, and DNC in relation to modern production of components using CNC is outlined.

1.5 Potential hazards in the use of CNC machines, and methods of managing these hazards, are identified.

Outcome 2

Demonstrate knowledge of applications of CNC controlled fabrication machines.

Evidence requirements

2.1 Advantages and disadvantages of CNC controlled fabrication machines are described and compared to manual control.

2.2 CNC controlled fabrication machines are described with reference to their applications and operations.

Range sheet metal benders, punching machines, laser cutters, plasma cutters, waterjet cutters, shears, press brakes.

Replacement information	This unit standard was replaced by unit standard 30473.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 July 2009	31 December 2022
Review	2	17 August 2017	31 December 2022

Consent and Moderation Requirements (CMR) reference	0013

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.