

<b>Title</b>	<b>Program a 4-axis CNC machining centre using proprietary software</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>15</b>

<b>Purpose</b>	<p>This unit standard covers programming of a 4-axis Computer Numerical Control (CNC) machining centre using proprietary software, for at least two different materials.</p> <p>People credited with this unit standard are able to: prepare to program, and program, a 4-axis CNC machining centre.</p>
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<b>Classification</b>	Mechanical Engineering > Engineering Machining and Toolmaking
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<b>Available grade</b>	Achieved
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<b>Entry information</b>	
<b>Recommended skills and knowledge</b>	Unit 18616, <i>Program a 3-axis CNC machining centre using proprietary software</i> , or demonstrate equivalent knowledge and skills.

**Explanatory notes**

- 1 References  
Health and Safety in Employment Act 1992.
- 2 Definitions  

**CNC** – Computer Numerical Control.  
**4-axis CNC machining centre** – machines that combine point-to-point and continuous path operations. Features include automatic tool selection and changing, and the ability to carry out drilling, milling, and boring operations with four controlled axes.  
**Worksite procedures** – operational procedures put in place by the candidate’s employer. These include site safety procedures, equipment operating procedures, job procedures, and procedures for the handling and disposal of materials and waste.

- 3 Assessment Information
- a All activities must comply with relevant legislative and/or regulatory requirements, which include, but are not limited to, the Health and Safety in Employment Act 1992.
  - b All activities must demonstrate safe working practices.
  - c Technical problems encountered may be resolved in consultation with technical advisors.
- 4 Range
- a Programming of a 4-axis CNC machining centre may include but is not limited to operations such as the machining of complex surfaces, and may use sub-routines.
  - b Evidence of programming for machining of two different materials is required.

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## Outcomes and evidence requirements

### Outcome 1

Prepare to program a 4-axis CNC machining centre.

#### Evidence requirements

- 1.1 Computer Aided Machining software is installed in accordance with worksite procedures.
- 1.2 Machining sequence is determined from drawings and specifications in accordance with worksite procedures.
- 1.3 Tools are selected to meet materials, geometry of workpiece, and specifications.
- 1.4 Parameters for machining are entered to satisfy the requirements of the proprietary software.

### Outcome 2

Program a 4-axis CNC machining centre.

#### Evidence requirements

- 2.1 Computer simulation is used to verify tool path in accordance with worksite procedures.
- 2.2 Modifications are made as necessary to ensure compliance with specifications.
- 2.3 Documentation is produced in accordance with worksite procedures.
- 2.4 File is transferred to machine in accordance with worksite procedures.

<b>Planned review date</b>	31 December 2014
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 September 2001	31 December 2012
Review	2	20 June 2006	N/A
Rollover and Revision	3	17 November 2011	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0013
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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.

#### Comments on this unit standard

Please contact Competenz [qualifications@competenz.org.nz](mailto:qualifications@competenz.org.nz) if you wish to suggest changes to the content of this unit standard.