

<b>Title</b>	<b>Set up and operate a CNC engineering lathe or machining centre</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>3</b>

<b>Purpose</b>	<p>This unit standard, intended for on job assessment, is for people training to work in machining roles.</p> <p>People credited with this unit standard are able to set up and operate a CNC engineering lathe or 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>Prerequisite</b>	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  

**CNC** – Computer numerical control.

**Specifications** – detail that defines an object being made; commonly communicated by annotated and dimensioned drawings; by written description, or by other communication media. External references may also be used to specify objects such as tables or industry standards.

**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 Recommended base knowledge  
Candidates should be able to safely carry out basic machining operations such as is covered in unit standards 29671, *Demonstrate knowledge of machining equipment, tools, and principles*, and 29673, *Apply good work practices when performing basic mechanical engineering machining operations under supervision*.
- 4 Related unit standards  
This unit standard is one of an introductory CNC machining set:

- 30276, *Demonstrate and apply knowledge of programming and operating CNC lathes or machining centres* (Level 2); an off job introductory unit standard that covers basic CNC knowledge to prepare candidates for employment.
- 30273, *Set up and operate a CNC engineering lathe or machining centre* (Level 3); a workplace unit standard for candidates that covers simple setting and operation of CNC lathes and machining centres.
- 22910, *Produce a part program for a CNC engineering lathe or machining centre* (Level 3); an introductory CNC programming unit standard for creating up to 3 axis machining files; intended to be assessed on or off job.

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## Outcomes and performance criteria

### Outcome 1

Set up a CNC engineering lathe or machining centre.

#### Performance criteria

- 1.1 Machining instructions are confirmed in accordance with specifications and job requirements.
- Range examples are – quality checks, tooling replacement intervals, pre-machining checks, critical dimensions, quantities.
- 1.2 Cutting tools are loaded into turret or carousel in accordance with machine instructions and workplace procedures.
- 1.3 Work holding devices are selected, and workpiece is loaded in accordance with workplace procedures.
- 1.4 Workpiece reference point is assigned in accordance with machine instructions, and workplace procedures.
- 1.5 Programme is loaded and offsets are entered in accordance with machine instructions to meet specifications.

### Outcome 2

Operate a CNC engineering lathe or machining centre.

#### 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 Test pieces are cut in accordance with workplace procedures.
- 2.3 Measurements and adjustments are made in accordance with workplace procedures.

2.4 Machine operation is monitored in accordance with workplace procedures.

Range examples are – coolant flow rate, cutting vibration.

2.5 Tool changes and adjustments are made to maintain component accuracy in accordance with machining instructions and workplace procedures.

Range examples are – carbide insert replacement, complete tool replacement, off-set changes, coolant flow rate.

2.6 Machining and post machining operations are performed in accordance with specifications.

Range examples are – component dimensions, surface finish.

2.7 Set-up and operation is documented in accordance with workplace procedures.

<b>Planned review date</b>	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	20 July 2017	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>.

#### 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.