

<b>Title</b>	<b>Produce a part program for 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 is intended for people training to become mechanical engineering machinists.</p> <p>People credited with this unit standard are able to produce a part programme for a CNC 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>Prerequisites</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.

*Part program* – CNC format program that controls machine function and machining of a part to meet a specification; in accordance with workplace procedures.

*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 and 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.
- Unit 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.

5 This unit standard is intended to assess competence to produce a manual original part program based on drawings or specifications. It is not intended to cover modification or use of existing electronic files.

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## Outcomes and performance criteria

### Outcome 1

Produce a part program for a CNC engineering lathe or machining centre.

Range one manual program using preparatory codes and miscellaneous functions, or equivalent machine compatible format.  
Examples are – G code, conversational programming.  
May include a sub programme and canned cycles.

### Performance criteria

1.1 Set-up sheet is produced in accordance with job requirements and workplace procedures.

Range set-up sheet content examples are – establishment of machine and part zero points; cutting tools and work-holding devices; speeds and feeds; setting-up instructions.

1.2 Programs demonstrate point-to-point machining, and continuous path machining with linear and circular interpolation in accordance with job requirements.

1.3 Programs demonstrate use of tool compensation in accordance with job requirements.

Range length, radius compensation, tool nose radius compensation.

1.4 Programs are test run, and produce the components to specification.

Range dry run, run in single block.

<b>Replacement information</b>	This unit standard replaced unit standard 2711.
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<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 June 2006	31 December 2022
Rollover and Revision	2	17 November 2011	31 December 2022
Review	3	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.