

Title	Apply good work practices when performing basic mechanical engineering machining operations under supervision		
Level	2	Credits	6

Purpose	<p>This is an entry-level unit standard for people working in the mechanical engineering trades involved in the operation of machines to produce or modify components to the required tolerance. It is concerned with establishing the safe use of machines and the application of good work practices, rather than precision machining.</p> <p>People credited with this unit standard are able to apply good work practices under supervision when: preparing for machining operations; performing machining operations; and adjusting and maintaining machines.</p>
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Classification	Mechanical Engineering > Engineering Core Skills
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Available grade	Achieved
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Entry information	
Critical health and safety prerequisites	Unit 21911, <i>Demonstrate knowledge of safety on engineering worksites</i> ; Unit 21912, <i>Apply safe working practices on an engineering worksite</i> ; or demonstrate equivalent knowledge and skills.
Recommended skills and knowledge	Unit 29671, <i>Demonstrate knowledge of machining equipment, tools, and principles</i> ; Unit 29650, <i>Demonstrate knowledge of the safe use of powered equipment in a mechanical engineering or fabrication workshop</i> .

Explanatory notes

- References
Health and Safety at Work Act 2015 and supporting Regulations. Accident Compensation Corporation and Department of Labour. *Metal Industry Guidelines for Safe Work*. (Wellington: ACC, 2007). Available from http://www.acc.co.nz/PRD_EXT_CSMP/idcplg?IdcService=GET_FILE&did=3023&dDocName=PRD.
R. Culley (2010) *Fitting and Machining*. Melbourne, Australia, RMIT Publishing. ISBN 9781921426780.

2 Definitions

Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.

Good work practices – safe, efficient, and effective routine work practices that are generally accepted by an industry sector. These may include standard operating procedures such as: a series of specific steps to complete a job, health and safety practices, care and use of tools and equipment, use of personal protective equipment, communications, and reporting. They may also include compliance with quality standards, manufacturer's instructions, and workplace policies and procedures covering: housekeeping, personnel hygiene, drug and alcohol use, computer and internet use, and privacy.

Job specifications refers to instructions relevant to the safe completion of the specific task, such as technical specifications, assembly instructions, drawings, parts lists, standards, codes of practice, test and commissioning procedures, and verbal instructions.

Under supervision refers to working under the direction of a suitably qualified tradesman or manager who oversees the learner and is responsible for ensuring that the quality of work meets the required standard.

Workplace procedures refers to procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – 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 Range

Machines – drill press, manually controlled lathe, manually controlled milling machine.

Drilling – a minimum of five different sized holes between 3mm and 20mm.

Turning – turning diameter, turning length, taper turning using compound slide, cutting grooves, drilling, parting off.

Milling – slotting, drilling, facing, end milling.

Machining tolerances using mill or lathe – diameter +/-0.1mm, linear +/-0.2mm.

4 Assessment information

Examples/evidence given must be within the context of mechanical engineering and must meet applicable workplace procedures and accepted industry practice.

Outcomes and evidence requirements

Outcome 1

Apply good work practices when preparing for machining operations under supervision.

Evidence requirements

- 1.1 Machine and work area are prepared for machining operations in accordance with workplace procedures and/or accepted industry practice.
- 1.2 Job specifications are interpreted and machining process and tolerances are established.

- 1.3 Machining parameters are determined for the task to be completed.
- Range machining parameters – speed rate, feed rate, machine capacity.
- 1.4 Cutting tools appropriate for the operations to be performed are selected and checked in accordance with workplace procedures and/or accepted industry practice.
- 1.5 Hazards associated with the task are identified and methods are put in place to eliminate or minimise them.

Outcome 2

Apply good work practices when performing machining operations under supervision.

Evidence requirements

- 2.1 Tools and workpieces are mounted in accordance with workplace procedures and/or accepted industry practice.
- 2.2 Equipment is set for machining parameters in accordance with job specifications and workplace procedures, and/or accepted industry practice.
- 2.3 Machining is performed to meet job specifications in accordance with workplace procedures and/or accepted industry practice.

Outcome 3

Apply good work practices when completing machining operations under supervision.

Evidence requirements

- 3.1 Completion activities specific to the task and work area are carried out in accordance with workplace procedures and/or accepted industry practice.
- Range examples of completion activities – tooling checked and any defects reported, cutting tools sharpened, tooling returned to storage, waste material disposed of, documentation completed.
- 3.2 Routine machine maintenance activities are completed in accordance with workplace procedures and/or accepted industry practice.
- Range examples of maintenance activities – checks, adjustments, lubrication, cleaning.
- 3.3 Machine is left ready for the next operation in accordance with workplace procedures and/or accepted industry practice.

Replacement information	This unit standard and unit standard 29671 replaced unit standard 21906.
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Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	8 December 2016	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>.

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 if you wish to suggest changes to the content of this unit standard.