Title	**Demonstrate knowledge of the safe use of powered equipment in a mechanical engineering or fabrication workshop**		
Level	**2**	**Credits**	**2**

Purpose	This unit standard is for people operating powered equipment in a mechanical engineering or fabrication environment and covers areas of health and safety that are common to all powered equipment. It is expected that the knowledge will be supplemented in the workplace as required by additional training in the use of specific equipment. People credited with this unit standard are able to demonstrate knowledge of immediate safety hazards and long term health hazards when using powered machinery, hazards of machinery power supplies and their management, safety when operating powered machinery, and safety and isolation when servicing powered machinery.

Classification	Mechanical Engineering > Engineering Core Skills

Available grade	Achieved

Recommended skills and knowledge	Unit standard 21911, *Demonstrate knowledge of safety on engineering worksites*, or demonstrate equivalent knowledge and skills.

Explanatory notes

1 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.
WorkSafe New Zealand (2014). *The Best Practice Guidelines for the Safe Use of Machinery.* Available from http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/safe-use-of-machinery/safe-use-of-machinery-pdf.

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.
OOS refers to Occupational Overuse Syndrome, often also called Repetitive Strain Injury (RSI). A range of conditions which cause discomfort or persistent pain in

muscles, joints, tendons, nerves and soft tissues developing as the result of a number of factors such as repetitive movement, constant muscle contraction or straining, forceful movements and constricted postures.
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.
Worksafe guidelines refers to the Metal Industry Guidelines for Safe Work and other relevant WorkSafe New Zealand publications; and the Health and Safety at Work Act 2015 and supporting regulations.

3 Range
Examples of powered machinery – machining equipment such as mill, lathe, and drill; and fabrication equipment such as band saw, brake press, and hole punch using hydraulic, pneumatic or electrical power supplies.
Safety when using welding and thermal cutting equipment is not included in this unit standard and is covered separately in unit standard 29651, *Demonstrate knowledge of health and safety when welding and thermal cutting*.

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

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of immediate safety hazards and long term health hazards when using powered machinery.

Evidence requirements

1.1 Immediate safety hazards when using powered machinery are identified and the effects they have on immediate health are described.

Range immediate safety hazards include but are not limited to – entanglement, moving blades, projectiles, electricity, sparks, crushing, sharp material edges.

1.2 Long term health hazards when using powered machinery are identified and the effects they have on health over time are explained.

Range long term health hazards include but are not limited to – use of cutting fluids, noise, vibration, manual handling, dust, fumes, OOS.

Outcome 2

Demonstrate knowledge of the hazards of machinery power supplies and their management.

Evidence requirements

2.1 Machinery power supply hazards are identified and methods to eliminate or minimise them are stated.

Outcome 3

Demonstrate knowledge of safety when operating powered machinery.

Evidence requirements

3.1 Types of machinery guarding and their application are described in accordance with Worksafe guidelines.

Range types of machinery guarding includes but are not limited to – fixed, interlocked, safe by position, trip guards.

3.2 The dangers of removing guards are stated.

3.3 Pre-start safety precautions are described in accordance with Worksafe guidelines and accepted industry practice.

Range includes but is not limited to - guards; security of workpiece; selection of appropriate tool for the job, PPE, hair, jewellery, emergency stop location, use of screens.

3.4 Safe operation of equipment is described in accordance with Worksafe guidelines and accepted industry practice.

Range includes but is not limited to – direction of sparks and dust; stance; handling of tools or materials; removal of residue, burrs and swarf; taking measurements; cut pieces of work falling, fatigue.

Outcome 4

Demonstrate knowledge of safety and isolation when servicing powered machinery.

Range servicing includes but is not limited to – changing cutting discs, blades and machining tools; cleaning; replenishing cutting fluids; lubrication.

Evidence requirements

4.1 Safety precautions when servicing equipment are described in accordance with Worksafe guidelines and accepted industry practice.

4.2 The purpose and methods of isolation are described in accordance with Worksafe guidelines and accepted industry practice.

Planned review date	31 December 2021

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	15 September 2016	N/A

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.

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.