

<b>Title</b>	<b>Demonstrate knowledge of mechanical engineering plant maintenance</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>3</b>

<b>Purpose</b>	<p>This on job unit standard is intended for people training in the maintenance of mechanical engineering manufacturing plants.</p> <p>People credited with this unit standard are able to demonstrate knowledge of mechanical engineering plant maintenance strategies; activities; and fault diagnosis.</p>
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<b>Classification</b>	Mechanical Engineering > Maintenance and Diagnostics in Mechanical Engineering
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<b>Available grade</b>	Achieved
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**Guidance Information**

**Definitions**

*Reliability centred maintenance* – planned maintenance strategy that is needs-based, and intended to provide the best mix of plant reliability and cost effectiveness.

*Total productive maintenance* – company-wide philosophy of maintenance that involves the entire company and focuses on continuous improvement.

*Total quality management (TQM)* – management strategy aimed at embedding awareness of quality in all processes of an organisation.

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**Outcomes and performance criteria**

**Outcome 1**

Demonstrate knowledge of mechanical engineering plant maintenance strategies.

**Performance criteria**

1.1 Implications of plant maintenance approaches are explained. The explanation uses examples of practical situations.

Range approaches – reactive, planned, preventative, predictive, proactive, statistical control based, condition monitored, on condition.

1.2 Reliability centred maintenance, total productive maintenance, and total quality management are explained in relation to plant and process reliability.

1.3 Key performance indicators (KPIs) for plant reliability are explained.

Range KPI examples are – daily targets, rejection rates, tolerances.

## Outcome 2

Demonstrate knowledge of mechanical engineering plant maintenance activities.

### Performance criteria

2.1 Typical maintenance planning, scheduling, and shutdown activities are identified and explained for a range of maintenance approaches.

Range maintenance approaches – reactive, planned, preventative, predictive, proactive, statistical control based, condition monitored, on condition.

2.2 Machine maintenance activities are explained and approaches compared according to plant type and downtime considerations.

Range activities – cleaning, servicing, adjusting, monitoring, fault finding, repair, replacement.

2.3 Condition monitoring techniques are described. The description includes purpose, monitoring instrument principle, and application in a maintenance programme.

Range techniques – vibration analysis, ultrasonic detection, oil analysis, infrared thermal imaging.

## Outcome 3

Demonstrate knowledge of mechanical engineering plant maintenance fault diagnosis.

### Performance criteria

3.1 Mechanical plant fault diagnosis process is explained.

Range symptom analysis, condition measurement, use of manuals and fault-finding data, logical analysis, fault location.

3.2 Common faults in mechanical plant are described. The description includes symptoms, causes, and remedies.

Range five different faults.

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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 2014
Review	2	15 April 2011	31 December 2022
Review	3	20 July 2017	N/A

**Consent and Moderation Requirements (CMR) reference**

0013

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.