

<b>Title</b>	<b>Demonstrate and apply knowledge of BCM in mechanical engineering plant</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>This unit standard is for use in the training of mechanical engineering maintenance personnel in manufacturing and processing plants. It covers concepts and tactics of Business Centred Maintenance (BCM) and their application to a maintenance improvement proposal.</p> <p>People credited with this unit standard are able to demonstrate knowledge of BCM philosophy and supporting maintenance strategies and tactics, and apply the knowledge to develop and document a maintenance improvement proposal.</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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**Explanatory notes**

- 1 Reference  
Ramesh Gulati, Ricky Smith. *Maintenance and Reliability Best Practices*. New York: Industrial Press Inc., 2009.
- 2 Definitions  
**CMMS** – Computer Maintenance Management System.  
*Recognised methodology* refers to a methodology for maintenance improvement in accordance with the reference text listed in explanatory note 1, or similar published methodologies, or similar in-house enterprise methodologies for which guidelines or precedents exist.  
**HAZOPS** – Hazard and Operability Study. A structured and systematic examination of a process or operation in order to identify and evaluate problems that may represent risks to personnel or equipment, or prevent efficient operation.  
**KPI** – Key Performance Indicator.  
**NPV** – Net Present Value.  
**OEE** – Overall Equipment Effectiveness.  
**RCFA** – Root Cause Failure Analysis.  
**RCM** – Reliability Centred Maintenance. A systematic and structured process to develop an efficient and effective maintenance plan for an asset. The process aims to minimize the probability of failures, ensure safety, and meet operational objectives.  
**ROI** – Return on Investment.

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## Outcomes and evidence requirements

### Outcome 1

Demonstrate knowledge of BCM philosophy and supporting maintenance strategies.

#### Evidence requirements

1.1 BCM philosophy is explained in terms of continuous improvement of the maintenance function and its strategic contribution to the achievement of business operational goals.

Range business goals – improving margins, improving throughput, reducing overheads.

1.2 Supporting maintenance strategies are contrasted from the point of view of application, advantages, and disadvantages within a continuous maintenance improvement environment.

Range maintenance strategies – reactive, preventative, predictive, proactive.

### Outcome 2

Demonstrate knowledge of tactics employed in BCM.

#### Evidence requirements

2.1 Tactics employed BCM are explained in terms of their purpose, function, and contribution to maintenance best practice.

Range tactics include but are not limited to – asset renewal planning; audit and benchmarking including use of KPIs; use of CMMS; condition monitoring; essential care and husbandry; functional integration including maintenance and operational coordination; HAZOPS; measurement of OEE; maintenance work management including planning and scheduling; RCM; RCFA.

### Outcome 3

Apply knowledge of BCM by developing and documenting a maintenance improvement proposal.

Range developing and documenting – in accordance with a recognised methodology.

#### Evidence requirements

3.1 The current state of an item of plant is analysed and the scope for maintenance improvement determined.

3.2 Proposal is developed relative to current state analysis findings.

Range purpose, methods, KPIs, required end state.

3.3 Proposal is justified in terms of ROI and NPV.

3.4 Possible barriers to implementation of the proposal are identified and suggestions made as to how they may be remedied.

3.5 Proposal is documented.

Range documentation includes but is not limited to – analysis, proposal details, justification, remedies for possible barriers.

<b>Planned review date</b>	31 December 2015
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 November 2010	N/A

<b>Accreditation and Moderation Action Plan (AMAP) reference</b>	0013
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This AMAP 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, or an inter-institutional body with delegated authority for quality assurance, 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.

Consent requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP 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 [info@competenz.org.nz](mailto:info@competenz.org.nz) if you wish to suggest changes to the content of this unit standard.