

Title	Apply concepts and principles of TPM in a workplace		
Level	4	Credits	10

Purpose	People credited with this unit standard are able to: identify the concepts and principles of Total Productive Manufacturing (TPM) in a workplace; identify workplace ownership of equipment performance by individuals or teams; calculate Overall Equipment Effectiveness (OEE); apply TPM principles to work area management; and establish basic equipment conditions in a work area.
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Classification	Manufacturing Skills > Competitive Systems and Practices
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Available grade	Achieved
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Guidance Information

Definitions

Basic equipment condition is a term used to describe a state of equipment where elimination of looseness, contamination and incorrect lubrication has occurred. The term is also used to describe the systematic process of achieving this state by industry. The term operator equipment management and autonomous maintenance may also be used. *Overall Equipment Effectiveness (OEE)* is the combination of the main factors causing loss of productive capacity from equipment/plant and is: $OEE = \text{availability} \times \text{performance} \times \text{quality rate}$; where availability takes into account losses due to breakdowns, set up and adjustments; performance takes into account losses due to minor stoppages, reduced speed and idling; quality rate takes into account losses due to rejects, rework and start up waste.

Total Productive Manufacturing (TPM) is an application of total quality management principle (including total employee involvement, continuous improvement, workplace ownership and holistic measurement) to maintenance with the intention of increasing reliability, getting it right first time and increasing OEE. Similar strategies referenced within the Australian units of competency listed on the [NZQCF](#) include Total Preventative Maintenance/Total Productive Maintenance and Reliability Centred Maintenance (RCM).

Outcomes and performance criteria

Outcome 1

Identify the concepts and principles of TPM in a workplace.

Performance criteria

1.1 Identify how the TPM Pillars help to achieve TPM outcomes.

Range TPM pillars may include but are not limited to – maintenance excellence, autonomous maintenance, process and equipment improvement, education and training, operator or early equipment management, process and quality improvement, safety, health and environmental management.
evidence of three is required.

1.2 Identify how the TPM principles help to achieve TPM outcomes.

Range Continuous Improvement, Holistic Measurement, Ownership, Total Employee Involvement.

1.3 Identify how TPM features support continuous improvement and equipment management.

Range features may include but are not limited to – management support, site leadership, cross functional, area-based teams, systematic approach, documentation of meetings, documentation of procedures, standards and specifications, review, measurement, on-going evaluation.
evidence of five is required.

Outcome 2

Identify workplace ownership of equipment performance by individuals and teams.

Performance criteria

2.1 Identify how TPM methods support maintenance and operating staff to work together to improve the operation of equipment.

Range may include but is not limited to – operator involvement in maintaining plant, maintenance staff involvement in machine performance, effective communication regarding machine performance.

2.2 Identify base skills and mastery skills as they relate to equipment maintenance and ownership.

Outcome 3

Calculate OEE.

Performance criteria

3.1 Explain the components in OEE.

3.2 Collect data and calculate OEE for the work area or process.

3.3 Explain the six big losses and how these impact on performance.

Outcome 4

Apply TPM principles to work area management.

Performance criteria

4.1 Explain the objectives of work area management.

4.2 Apply identified objectives of work area management.

Range includes but is not limited to – five areas of focus.

Outcome 5

Establish basic equipment conditions in a work area.

Performance criteria

5.1 Explain the reasons for establishing basic equipment conditions in terms of impact on quality, machine reliability, equipment life, and the reduction of accidents or incidents.

5.2 Describe the process for establishing the seven steps required to achieve basic equipment conditions within a work area.

5.3 Explain the purpose of maintenance and servicing within a work area.

Planned review date	31 December 2029
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 January 2002	31 December 2016
Review	2	27 September 2005	31 December 2018
Review	3	10 December 2015	31 December 2025
Review	4	27 March 2025	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>.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.