



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MSACMT482A Assist in implementing a proactive maintenance strategy**

**Revision Number: 1**

## MSACMT482A Assist in implementing a proactive maintenance strategy

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers the knowledge and skills required by a maintenance person to assist in the implementation of a proactive maintenance strategy in a manufacturing environment. This unit includes the interaction between maintenance worker and operator as appropriate.
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### Application of the Unit

<b>Application of the unit</b>	<p>In a typical scenario, an organisation has adopted/is implementing <i>Total Preventative Maintenance/Total Productive Maintenance (TPM)</i>, <i>Reliability Centred Maintenance (RCM)</i> or <i>similar strategies</i>. As part of this the maintenance personnel are expected to assist in the implementation by determining appropriate maintenance related schedules and also by providing maintenance related assistance to non-maintenance personnel, such as assisting production personnel to fulfil their role in the TPM/RCM strategy.</p> <p>This unit requires the application of skills associated with problem solving and initiative and enterprise in order to analyse maintenance requirements. Communication, teamwork and planning and organising skills will be required to implement reliability strategies. This requires aspects of self management to ensure improvement of own performance and learning.</p>
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### Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

<b>Prerequisite units</b>	
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## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Develop components of reliability strategy for a work/plant area	1.1. Determine manufacturer's recommended <i>inspection, servicing</i> and related schedules for relevant plant 1.2. Consult with relevant people with regard to appropriate inspections, services and schedules 1.3. Discuss any conflicts with relevant people and seek resolution of conflicts 1.4. Develop schedules in liaison with relevant people 1.5. Identify inspections and servicing which may be done by operations personnel in liaison with relevant stakeholders
2. Assess current practice for maintenance implications	2.1. Evaluate <i>procedures</i> for plant/equipment reliability implications 2.2. Discuss current practices with relevant people to determine any plant/equipment reliability implications 2.3. Recommend changes to improve plant/equipment reliability in accordance with procedures
3. Assist in implementing the reliability strategy	3.1. Arrange for schedules to be incorporated in relevant work plans 3.2. Identify training needs in discussion with relevant personnel 3.3. Assist personnel to develop required skills for inspections/servicing within scope of authority 3.4. Collect data/information as required by own work plan 3.5. Compare data/information with performance indicators 3.6. Recommend improvements to reliability strategy in accordance with procedures

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills:

- communication
- planning
- organising
- prioritising
- reading and interpretation
- recording
- problem solving.

#### Required knowledge:

- requirements of the proactive maintenance strategy being implemented
- principles of operation of the equipment/plant
- likely abilities of operations personnel with regard to inspections and servicing
- procedures relevant to job
- methods of making/recommending improvements.

## Evidence Guide

### EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

<p><b>Overview of assessment requirements</b></p>	<p>There should be evidence that the maintenance person is routinely applying proactive maintenance strategies in their routine work and that they are aware of why they are important. In a TPM environment, the operator needs to move to taking ownership of their equipment/plant and maintenance personnel have a role to play in helping this happen and in developing the competence of operating personnel to do so</p>
<p><b>What critical aspects of evidence are required to demonstrate competency in this unit?</b></p>	<p>Evidence of schedules developed and implemented and improvements recommended.</p>
<p><b>In what context should assessment occur?</b></p>	<p>This unit needs to be assessed in a workplace practising, or beginning to implement proactive maintenance.</p>
<p><b>Are there any other units which could or should be assessed with this unit or which relate directly to this unit?</b></p>	<p>This unit could be assessed in conjunction with a technical unit related to maintenance.</p> <p>This unit is related to:</p> <ul style="list-style-type: none"> <li>• <i>MSACMT481A Undertake proactive maintenance analyses</i> which covers the analysis skills associated with proactive maintenance.</li> </ul> <p>These units are complimentary and in some organisations it may be appropriate for the one person to hold both competencies.</p> <p>This unit is related to:</p> <ul style="list-style-type: none"> <li>• <i>MSACMT681A Develop a proactive maintenance strategy</i> which is the highest level unit dealing with proactive maintenance in CM.</li> </ul>
<p><b>What method of assessment should apply?</b></p>	<p>Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the elements, performance criteria, skills and knowledge. A holistic approach should be taken to the assessment.</p> <p>Assessors should gather sufficient, fair, valid, reliable,</p>

<b>EVIDENCE GUIDE</b>	
	<p>authentic and current evidence from a range of sources. Sources of evidence may include direct observation, reports from supervisors, peers and colleagues, project work, samples, organisation records and questioning. Assessment should not require language, literacy or numeracy skills beyond those required for the unit.</p> <p>The assessee will have access to all techniques, procedures, information, resources and aids which would normally be available in the workplace.</p> <p>The method of assessment should be discussed and agreed with the assessee prior to the commencement of the assessment.</p>
<b>What evidence is required for demonstration of consistent performance?</b>	There needs to be evidence that schedules related to proactive maintenance have been developed either in an initial implementation of a proactive maintenance strategy, or have been developed as part of continuous improvement to the proactive maintenance strategy.
<b>What are the specific resource requirements for this unit?</b>	Access to a plant implementing/practising proactive maintenance. No other specific resources are required.

## Range Statement

<b>RANGE STATEMENT</b>	
<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<p><b>Total Preventative Maintenance/Total Productive Maintenance (TPM)</b></p>	<p>Total Preventative Maintenance/Total Productive Maintenance (TPM) is an application of total quality management to maintenance with the intention of increasing reliability, getting it right first time and increasing <i>Overall Equipment Efficiency (OEE)</i>.</p>
<p><b>Reliability Centred Maintenance (RCM)</b></p>	<p>Reliability Centred Maintenance (RCM) moves maintenance from reactive, or even planned/programmed, towards a focus on <i>uptime</i> and OEE.</p>
<p><b>Similar strategies</b></p>	<p><i>Mean Time Between Failure (MTBF)</i> is one key measure of the effectiveness of a maintenance procedure, and is an indicator as to whether <i>root causes</i> are being found and resolved. If MTBF is reducing, then it is an indicator that the maintenance regime is failing.</p> <p><i>Failure Mode and Effects Analysis (FMEA)</i> is a systematic approach that identifies potential failure modes in a system, product, or manufacturing/assembly operation caused by either design or manufacturing/assembly process deficiencies. It also identifies critical or significant design or process characteristics that require special controls to prevent or detect failure modes. FMEA is a tool used to prevent problems from occurring.</p> <p>Some industry sectors have highly adapted forms of FMEA and may practice traditional FMEA in say their routine maintenance while using another technique (such as <i>HAZOP</i>) for design and modification.</p> <p><i>Hazard and Operability Studies (HAZOP)</i> is a form of FMEA which has been practiced by the process industries for over 30 years and examines the implications of changes in process conditions to process stability.</p> <p><i>Condition monitoring</i> involves often quite sophisticated monitoring of equipment including such things as</p>



<b>RANGE STATEMENT</b>	
	vibration monitoring, instrumental analysis of lubricating oil etc to determine the current state of the equipment, monitor the change in this condition and predict when it needs servicing/maintenance to maintain reliability.
<b>Overall Equipment Efficiency (OEE)</b>	<p>Overall Equipment Efficiency (OEE) is the combination of the main factors causing loss of productive capacity from equipment/plant and is:</p> <p><i>OEE = availability x performance x quality rate</i></p> <p>where:</p> <ul style="list-style-type: none"> <li>• availability takes into account losses due to breakdown, set up and adjustments</li> <li>• performance takes into account losses due to minor stoppages, reduced speed and idling</li> <li>• quality rate takes into account the losses due to rejects, reworks and start up waste.</li> </ul>
<b>Uptime</b>	Uptime refers to the overall availability of the plant - it is the inverse of downtime - or the unavailability of the plant. Ideal uptime is 100%.
<b>Inspection</b>	<p>Inspection may include:</p> <ul style="list-style-type: none"> <li>• reading dials, gauges, meters</li> <li>• observations including those using sight, hearing, smell, feel</li> <li>• observations of product quality/faults/rejects.</li> </ul>
<b>Servicing</b>	<p>Servicing may include:</p> <ul style="list-style-type: none"> <li>• cleaning</li> <li>• lubricating</li> <li>• topping up</li> <li>• adjusting.</li> </ul>
<b>Procedures</b>	<p>Procedures include all work instructions, standard operating procedures, formulas/recipes, batch sheets, temporary instructions and similar instructions provided for the smooth running of the plant. They may be written, verbal, computer based or in some other form.</p> <p>For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (e.g. Good Manufacturing Practice (GMP), Responsible Care) and government</p>

**RANGE STATEMENT**

	regulations.
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**Unit Sector(s)**

<b>Unit Sector</b>	CM Tools
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**corequisite units**

<b>Corequisite units</b>	
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**Functional area**

<b>Functional Area</b>	
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