



Australian Government

Department of Education, Employment and Workplace Relations

MSS404082A Assist in implementing a proactive maintenance strategy

Release: 1

MSS404082A Assist in implementing a proactive maintenance strategy

Modification History

New unit, superseding MSACMT482A Assist in implementing a proactive maintenance strategy - Equivalent

Unit Descriptor

This unit of competency covers the skills and knowledge required by a maintenance person to assist in the implementation of a proactive maintenance strategy in an organisation. This unit includes the interaction between a maintenance worker and operators, as appropriate.

Application of the Unit

This unit applies to a maintenance person in an organisation that has adopted or is implementing total preventative/productive maintenance (TPM), reliability centred maintenance (RCM) or similar strategies. As part of this, the maintenance person is 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.

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.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

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.

Elements and Performance Criteria

1	Develop components of reliability strategy for a work/plant area	1.1	Determine manufacturer's recommended inspection, servicing 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	Identify the overall equipment effectiveness (OEE) or other organisation targets for equipment/plant
		2.2	Evaluate procedures for plant/equipment reliability implications
		2.3	Discuss current practices with relevant people to determine any plant/equipment reliability implications
		2.4	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

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

Required skills

Required skills include:

- explaining concepts and processes of chosen proactive maintenance strategy used by the organisation and distinguishing from traditional (breakdown) maintenance strategies
- communicating with operators, other maintenance personnel, team leaders and technical experts in a variety of situations and using different media
- adapting personal communication strategy to different levels of operator and team leader literacy and numeracy
- working in formal and ad-hoc teams to implement proactive maintenance
- solving problems to root cause
- planning proactive maintenance tasks to fit in with maintenance and production schedules and the needs of other staff
- assessing the ability of operations personnel with regard to inspections and servicing of equipment
- reading and interpreting charts and diagrams, manufacturer manuals and specifications and operating procedures

Required knowledge

Required knowledge includes:

- requirements of the proactive maintenance strategy being implemented
- operating principles and procedures for equipment/plant subject to proactive maintenance strategy
- purpose and processes for data collection in proactive maintenance strategies
- procedures relevant to own job and organisation implementation of proactive maintenance
- methods of making/recommending improvements

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and	A person who demonstrates competency in this unit must
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<p>evidence required to demonstrate competency in this unit</p>	<p>be able to provide evidence of the ability to:</p> <ul style="list-style-type: none"> • source information from manuals and other technical documentation or software • effectively communicate with users on equipment operational and maintenance history • develop schedules for maintenance activities including seeking technical assistance, where appropriate • differentiate between proactive and traditional maintenance strategies.
<p>Context of and specific resources for assessment</p>	<p>Assessment of performance must be undertaken in a workplace using or implementing one or more competitive systems and practices.</p> <p>Access may be required to:</p> <ul style="list-style-type: none"> • workplace procedures and plans relevant to work area • specifications and documentation relating to planned, currently being implemented, or implemented changes to work processes and procedures relevant to the assessee • documentation and information in relation to production, waste, overheads and hazard control/management • reports from supervisors/managers • case studies and scenarios to assess responses to contingencies.
<p>Method of assessment</p>	<p>A holistic approach should be taken to the assessment.</p> <p>Competence in this unit may be assessed by using a combination of the following to generate evidence:</p> <ul style="list-style-type: none"> • demonstration in the workplace • workplace projects • suitable simulation • case studies/scenarios (particularly for assessment of contingencies, improvement scenarios, and so on) • targeted questioning • reports from supervisors, peers and colleagues (third-party reports) • portfolio of evidence. <p>In all cases it is expected that practical assessment will be combined with targeted questioning to assess underpinning knowledge.</p> <p>Where applicable, reasonable adjustment must be made to work environments and training situations to</p>

	accommodate ethnicity, age, gender, demographics and disability.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.

Range Statement

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.

Competitive systems and practices	<p>Competitive systems and practices may include, but are not limited to:</p> <ul style="list-style-type: none"> • lean operations • agile operations • preventative and predictive maintenance approaches • monitoring and data gathering systems, such as Systems Control and Data Acquisition (SCADA) software, Enterprise Resource Planning (ERP) systems, Materials Resource Planning (MRP) and proprietary systems • statistical process control systems, including six sigma and three sigma • Just in Time (JIT), kanban and other pull-related operations control systems • supply, value, and demand chain monitoring and analysis • 5S • continuous improvement (kaizen) • breakthrough improvement (kaizen blitz) • cause/effect diagrams • OEE • takt time • process mapping • problem solving • run charts • standard procedures
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	<ul style="list-style-type: none"> • current reality tree <p>Competitive systems and practices should be interpreted so as to take into account:</p> <ul style="list-style-type: none"> • the stage of implementation of competitive systems and practices • the size of the enterprise, the work organisation, culture • regulatory environment and the industry sector
TPM	TPM is an application of total quality management to maintenance with the intention of increasing reliability, getting it right first time and increasing OEE
RCM	RCM moves maintenance from reactive, or even planned/programmed, towards a focus on uptime and OEE
Similar strategies	<p>Similar strategies may include:</p> <ul style="list-style-type: none"> • mean time between failure (MTBF) which is one key measure of the effectiveness of a maintenance procedure, and is an indicator as to whether root causes are being found and resolved. If MTBF is reducing, then it is an indicator that the maintenance regime is failing • failure mode and effects analysis (FMEA) which is a systematic approach that identifies potential failure modes in a system, product, or equipment based operations caused by either design or operation/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 • industry sectors have highly adapted forms of FMEA and which may practice traditional FMEA in say their routine maintenance while using another technique, such as Hazard and Operability Studies (HAZOP) for design and modification. HAZOP 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 • condition monitoring which often involves quite sophisticated monitoring of equipment, including such things as vibration monitoring, instrumental analysis of lubricating oil, and so on, to determine the current state of the equipment, monitor the change in

	<p>this condition and predict when it needs servicing/maintenance to maintain reliability.</p>
OEE	<p>OEE is the combination of the main factors causing loss of productive capacity from equipment/plant and is:</p> $OEE = \text{availability} \times \text{performance} \times \text{quality rate}$ <p>where:</p> <ul style="list-style-type: none"> • availability takes into account losses due to breakdown, set-up and adjustments • performance takes into account losses due to minor stoppages, reduced speed and idling • quality rate takes into account the losses due to rejects, reworks and start-up waste
Uptime	<p>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%</p>
Inspection	<p>Inspection may include:</p> <ul style="list-style-type: none"> • reading dials, gauges and meters • observations, including those using sight, hearing, smell and feel • observations of product quality/faults/rejects
Servicing	<p>Servicing may include:</p> <ul style="list-style-type: none"> • cleaning • lubricating • topping up • adjusting
Procedures	<p>Procedures may include:</p> <ul style="list-style-type: none"> • work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions and similar instructions provided for the smooth running of the plant • good operating practice as may be defined by industry codes of practice (e.g. good manufacturing practice (GMP) and responsible care) • government regulations <p>Procedures may be:</p> <ul style="list-style-type: none"> • written, verbal, computer based or in some other format

Unit Sector(s)

Unit sector Competitive systems and practices

Custom Content Section

Not applicable.