



Australian Government

Department of Education, Employment and Workplace Relations

MSS404083A Support proactive maintenance

Release: 1

MSS404083A Support proactive maintenance

Modification History

New unit, superseding MSACMT483A Support proactive maintenance - Equivalent

Unit Descriptor

This unit of competency covers the skills and knowledge required to lead a production team/work group or maintenance team in a proactive maintenance environment.

Application of the Unit

This unit applies in a competitive systems and practices organisation where proactive maintenance strategies, such as total preventative/productive maintenance (TPM) or reliability centred maintenance (RCM) are used. This unit applies to a team leader or other person who as part of their role assists others in implementing and following the proactive maintenance practices. Team refers to formally designated teams or a group of employees in a common work area.

The unit assumes that team members and in particular the team leader or other support person are in possession of technical knowledge appropriate to their position about the organisation's operational processes and equipment and are able to apply this to the maintenance strategy. The unit covers the leading of a team in proactive maintenance activities, such as keeping records, visual checks, analysis of failures and effects on production and housekeeping. The unit does not cover breakdown maintenance, condition monitoring or non-destructive testing (NDT).

This unit requires the application of skills associated with communication, teamwork, problem solving, initiative, enterprise, planning and organising in order to lead a team in the development and implementation of proactive maintenance strategies. This unit has a strong emphasis on developing and resourcing the team to interpret information and monitor equipment and operation.

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	Lead team in monitoring process and equipment	1.1	Demonstrate to team how to observe the process/equipment continuously and critically using appropriate senses (e.g. sight and hearing) to identify any potential or actual problems
		1.2	Identify to team data indicators that must be monitored and recorded
		1.3	Ensure team monitors identified data indicators frequently and critically
		1.4	Ensure symptoms of operations outside the desired range of conditions and performance are recognised
		1.5	Analyse cause of equipment non-standard performance within scope of knowledge and skill
		1.6	Ensure team members take timely and appropriate action to solve problems or to refer problems to appropriate manager or specialist
2	Apply proactive maintenance strategy	2.1	Obtain and discuss maintenance strategy with relevant people
		2.2	Identify aspects of maintenance strategy which require specific input from team
		2.3	Discuss maintenance strategy with team members

- | | | | |
|---|---|-----|---|
| | | 2.4 | Ensure team members have resources and training to be able to make the required contributions |
| 3 | Analyse standard procedures and work practices | 3.1 | Examine team procedures and practices for compatibility with maintenance strategy |
| | | 3.2 | Identify areas where production procedures/practices should be changed to comply with maintenance strategy |
| | | 3.3 | Identify areas where maintenance strategy should change to comply with production procedures and practices |
| | | 3.4 | Identify other activities or areas where changes might increase equipment reliability |
| | | 3.5 | Take appropriate action to have the required changes made |
| 4 | Facilitate team contribution to proactive maintenance | 4.1 | Monitor team's contribution to proactive maintenance |
| | | 4.2 | Arrange for competency development of team members, as required |
| | | 4.3 | Facilitate ongoing examination by the team of process reliability and overall equipment effectiveness (OEE) |
| | | 4.4 | Arrange for follow through and implementation of team originated improvements |

Required Skills and Knowledge

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

Required skills

Required skills include:

- explaining concepts and processes to team of the proactive maintenance strategy and associated analyses used by the organisation and distinguishing from traditional (breakdown) maintenance strategies
- communicating with team members, maintenance personnel and technical experts in a variety of situations and using different media
- assessing capability of team as a whole and individually to contribute to proactive maintenance strategy
- identifying resources in the organisation to improve team capability in regards to proactive maintenance strategy
- working in a team
- solving problems

Required knowledge

Required knowledge includes:

- the production process as it applies to the team area of responsibility
- equipment controls and function used in team's work area
- data ranges and indicators for normal team operations
- data and equipment variations and fault indicators able to be identified by team during operations
- proactive maintenance strategies used by the organisation, including:
 - range of data required from team for proactive maintenance strategy
 - typical analyses used by the proactive maintenance strategy and their implication for work of the team
 - responsibilities of the team, maintenance staff and technical experts
- OEE and relationship to team's operational capability

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 evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to: • communicate effectively with team on the proactive maintenance strategy being adopted and the role expected by the team in its implementation • identify data required from team and for team key from the proactive maintenance strategy • analysing proactive maintenance strategy and current work practices of the team to identifying opportunities for better fit • differentiate between proactive and traditional maintenance strategies.
Context of and specific resources for assessment	Assessment of performance must be undertaken in a workplace using or implementing one or more competitive systems and practices. Access may be required to: • 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.
Method of assessment	A holistic approach should be taken to the assessment. Competence in this unit may be assessed by using a combination of the following to generate evidence: • 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. In all cases it is expected that practical assessment will be combined with targeted questioning to assess underpinning knowledge. Where applicable, reasonable adjustment must be made to work environments and training situations to 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	Competitive systems and practices may include, but are not limited to: • 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 • current reality tree Competitive systems and practices should be interpreted so as to take into account: • the stage of implementation of competitive systems and practices • the size of the enterprise • the work organisation, culture, regulatory environment and the industry sector
Team	Team may include: • work teams from all sections of the organisation including production, maintenance, technical, administration/finance and sales/marketing • a formally designated team or a group of employees in a common work area
Proactive maintenance strategies and associated analyses	Proactive maintenance strategy and associated analyses may include: • TPM and RCM • root cause analysis (RCA) • mean time between failures (MTBF) • failure mode and effects analysis (FMEA) • condition monitoring
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
OEE	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 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
MTBF	MTBF 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
FMEA	FMEA is a systematic approach that identifies potential failure modes in a system, product, or operations/assembly operation caused by either design or operations/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. 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 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	Condition monitoring 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 this condition, and predict when it needs servicing/maintenance to maintain reliability For this unit an awareness level only of condition monitoring and its implications for team operations is required.

Unit Sector(s)

Unit sector

Competitive systems and practices

Custom Content Section

Not applicable.