

Maintenance Planning Course Modules Content

Plan and Prepare Maintenance Work Activities Learning Plan

No	Element	Unit Performance Criteria (Key Learning Outcomes)	Conditions Prevailing	Learning Task	Training Content	Required Standard
1	The role of Maintenance Planning and Scheduling in Maintenance Management	<ol style="list-style-type: none"> Purposes of Maintenance Fundamentals of equipment reliability The role of Maintenance in a business risk management The role of Maintenance Planning and Scheduling (MPS) 	Maintenance required on operating plant and equipment	<ol style="list-style-type: none"> <ol style="list-style-type: none"> be aware of the full range of business requirements for the maintenance function <ol style="list-style-type: none"> Physics of Failure Machines are systems of parts Properties of Series and Parallel arrangements Matching maintenance activities to operating equipment risk The key functions Maintenance Planning and Scheduling provide the business 	<ol style="list-style-type: none"> Explain the role of Maintenance in Business <ol style="list-style-type: none"> Introduce the Physic of Failure concept Explain how machines fail only after their parts fail Overview reliability of Series and Parallel arrangements Highlight the properties of Series and Parallel arrangements <ol style="list-style-type: none"> Explain operating risk Explain Equipment Criticality Place MPS into the business context 	<ol style="list-style-type: none"> Explain purpose of Maintenance and its business impacts <ol style="list-style-type: none"> Explain why machines fail Do an FMEA – d) Identify risks and benefits of series and parallel arrangements <ol style="list-style-type: none"> Do a Equipment Criticality Analysis Select suitable maintenance activities to limit equipment risk Explain the purpose of MPS in business
2	Develop the planning workflow process	<ol style="list-style-type: none"> Develop a planning process with steps appropriate to (your) relevant industry publications /maintenance regulations /orders and standards and practices Planning process step requirements for maintenance work are identified and described Business-wide requirements to plan, coordinate and conduct maintenance work are implanted and used across the operation Develop measures and performance indicators for planning process 	Maintenance required on operating plant and equipment	<ol style="list-style-type: none"> <ol style="list-style-type: none"> Identify all the steps in the planning process Incorporate industry publications /maintenance regulations /orders and standards and practices Develop the details for each of the maintenance planning steps <ol style="list-style-type: none"> Identify and incorporate the business-wide requirements for successful accomplishment of maintenance work planning into the other business processes Identify enabling factors and the business requirements to incorporate planning process into standard operating practice Determine OHS and environmental requirements for the work and work area Create planning Key performance Indicators (KPIs) 	<ol style="list-style-type: none"> <ol style="list-style-type: none"> Introduction to maintenance planning and its benefits Planning time horizons Identify planning steps Identify accountabilities <ol style="list-style-type: none"> Range of planning steps for maintenance work Specifying each planning step details <ol style="list-style-type: none"> Identifying range of other business requirements for successful planning How to include planning process requirements into standard daily practice Identify /collate OHS&E needs Range of planning KPIs to use to monitor the planning process 	<ol style="list-style-type: none"> <ol style="list-style-type: none"> – b) Knowledgably explain the value of maintenance planning and justify its adoption Produce complete flow charts of the planning process used at the site Identify and allocate planning process responsibilities and accountabilities Develop necessary planning process step content in accord with process design Describe all necessary business, safety and operational requirements in planning process documentation Develop appropriate KPIs to monitor and trend maintenance work planning
3	Design and install	<ol style="list-style-type: none"> Using a computerised maintenance management 	Maintenance required on	<ol style="list-style-type: none"> <ol style="list-style-type: none"> Necessary equipment numbering structures 	<ol style="list-style-type: none"> <ol style="list-style-type: none"> Requirements for setting up a CMMS for planning maintenance 	<ol style="list-style-type: none"> <ol style="list-style-type: none"> Understand the use of a CMMS in planning

Maintenance Planning Course Modules Content

Plan and Prepare Maintenance Work Activities Learning Plan

No	Element	Unit Performance Criteria (Key Learning Outcomes)	Conditions Prevailing	Learning Task	Training Content	Required Standard
	planning support systems	system (CMMS) 2. Provide procurement and stores management 3. Provide necessary planning reports and documents 4. Develop complete Job Plans to do the work 5. Install a suitable document management method 6. Install a suitable records management method 7. Install a user friendly technical library 8. Provide work budgeting and cost monitoring/control 9. Generate management information and reports 10. Monitor planning process performance	operating plant and equipment	b) CMMS field naming and conventions c) Providing CMMS content for planning requirements 2. a) Specifying parts, materials and services b) Purchasing and delivery requirements c) Stores management basics d) Inventory control basics 3. Develop documents /reports and make them available to others 4. Develop Job Plans in a suitable form 5. Collate and manage the full range of documents required by the planning processes 6. Collate and manage the full range of records required by the organisational, legal and regulatory processes 7. Developing and cataloguing an engineering and technical library 8. Requirements for estimating job task costs and identifying actual expenditure 9. a) Determining and create the necessary management reports and their content 10. Track and present scheduling process KPIs	work b) Identify necessary industry publications /maintenance regulations /orders and standards and practices 2. a) – b) Purchase order subject matter c) Stores management requirements d) Inventory control fundamentals 3. Necessary planning documents and reports 4. Requirements and content necessary for Job Plans 5. a) Documents required and generated by the planning processes b) Storage of documents 6. a) Records and information generated by work done on plant and equipment b) Storage of records 7. Necessary technical information needing to be readily available 8. Maintenance job costing to $\pm 10\%$ accuracy 9. The range of content and the use of management reports 10. Planning process KPIs and trending	b) Provide the necessary CMMS database contents 2. a) Specify appropriate parts, materials and services correctly b) Provide all necessary details for purchasing and delivery c) Manage a maintenance parts store d) Establish inventory controls 3. Develop all necessary planning documents, reports and forms 4. Create a comprehensive and complete Job Plan 5. Establish a document management system 6. Establish a records management system 7. Establish and catalogue a technical library 8. Cost a work order accurately 9. Develop all necessary management reports 10. Present and track KPIs
4	Identify, specify and confirm job requirements	1. Task requirements are determined or confirmed and clarified to ensure correct interpretation of task requirements and specifications. 2. Requirements and specifications are analysed and priorities set in accordance with Planning	Maintenance required on operating plant and equipment	1. a) Contact work Requestor to understand the work request and problem history b) Rewrite work request with full details c) Review automatically computer generated work requests for validity 2. a) Scope-out full extent of work per standardised Job Scope List b) Identify work specifications and work quality standards	1. a) Work Request job information and problem history requirements b) Maintenance work order reviewed and adjusted with requirements 2. a) Contents and coverage of maintenance job scope-out b) – c) Selecting and collating work standards and engineering standards d) Setting Operational risk based job	1. Review work request and automatically generated work order content and make necessary corrections 2. a) Fully scope a job from start to completion b) – c) Define minimum work quality standards and engineering standards

Maintenance Planning Course Modules Content

Plan and Prepare Maintenance Work Activities Learning Plan

No	Element	Unit Performance Criteria (Key Learning Outcomes)	Conditions Prevailing	Learning Task	Training Content	Required Standard
		SOPs. 3. Resources are identified and obtained in order to complete task. 4. Identified difficulties or problems are resolved. 5. Requirements for site safety plan		c) Identify engineering requirements and standards for the physical asset d) Set Job Priority based on operational impact e) Managing backlog of work f) Identifying opportunity maintenance g) Identify all contents of the work pack associated with the job 3. a) Specify all necessary equipment, resources, parts and manning required to complete the work and recommission b) Identify if resources and manning required are internal or external c) Order parts and materials in a timely manner d) Using Contracted Services e) Identify potential resource and manning constraints and time issues f) Identify plant and/or equipment access issues 4. a) Resolve requirements to access the plant and/or equipment b) Resolve availability of parts and materials c) Resolve availability of internal and external resources 5. a) Identify requirements for safe access by personnel and equipment to conduct the work b) Identify requirements to conduct the work safely from start to end	priority e) Managing work backlog f) – g) Assemble complete work pack 3. a) Identifying equipment, resources, parts and manning b) Determine skills required to conduct the job tasks c) Purchasing requirements for parts and materials d) Minimum requirements for a job work pack e) Procuring and managing Contracted Service f) Ensuring availability of equipment, resources, parts and manning g) Recognising risks to the successful completion of the work 4. a) Addressing issues and risks in a manner suitable to the operation b) Confirming changes of intent with parties and people affected 5. a) Job safety analysis and assessment b) Protecting operating assets from accidental damage c) Putting job safety analysis outcomes into the job plan	d) – e) Prioritise backlog work to match operational risk f) – g) Develop and build the whole work pack 3. a) Identify all necessary resources, manning, parts, and plant access requirements b) Specify quantities of resources to be allocated for the work 4. Identify potential problems arising during the work and develop appropriate plans to address the situations if they occur 5. a) Identify safety issues and hazards for men and equipment when doing the work b) Plan and prepare all necessary personnel and equipment asset protection
5	Plan all steps to complete each task in	1. Task is interpreted and relevant steps are identified to ensure efficient conduct	Maintenance required on operating	1. a) Create a comprehensive work order from the work request	1. a) Key job and problem history information listed on the work order	1. a) Develop the full job plan for a work order



Maintenance Planning Course Modules Content

Plan and Prepare Maintenance Work Activities Learning Plan

No	Element	Unit Performance Criteria (Key Learning Outcomes)	Conditions Prevailing	Learning Task	Training Content	Required Standard
	the job	<p>of work to meet specifications in accordance with (your) relevant industry publications /maintenance regulations /orders and standards and practices.</p> <p>2. Steps are planned in conjunction with the work of other personnel to allow achievement of practical outcomes, in accordance with relevant (your) industry publications /maintenance regulations /orders and standards and practices.</p> <p>3. Human factors are allowed for in planning of steps.</p>	plant and equipment	<p>b) Develop a Job Plan listing the major activities to do the work and recommission equipment</p> <p>c) Identify skills and competencies required to do all tasks</p> <p>d) Collate necessary parts and materials list</p> <p>e) Identify applicable equipment data and job documentation needed to properly do tasks</p> <p>g) Establishing proof tests for job plan steps</p> <p>f) Write accuracy controlled tasks or develop accuracy controlled job procedure</p> <p>2. a) Identify required interactions across departments and across trade disciplines</p> <p>b) Confirm all appropriate resources and manning are available</p> <p>c) Confirm all necessary documents and engineering information is available</p> <p>3. a) Identify human factors that could cause complications to Job Plan activities</p> <p>b) Address human factor issues and clarify resolutions to adopt when the work is done</p>	<p>b) Contents of a Job Plan</p> <p>c) Developing Job Plan steps</p> <p>d) Necessary details noted on the Job Plan including work coordination</p> <p>e) Estimating standard time for tasks</p> <p>g) Using proof tests and check sheets to control work quality</p> <p>f) Develop accuracy controlled tasks and an accuracy controlled procedure</p> <p>2. a) Coordinating across groups of people with different agendas</p> <p>b) Coordinate with external resources</p> <p>c) Coordinate with Suppliers</p> <p>d) Coordinate with Stores</p> <p>e) Coordinate with Equipment Owner</p> <p>3. a) Explain human error and impact in maintenance work</p> <p>b) Explain the 'dirty dozen' Human Factors and how to address each one</p> <p>b) Planning preparation for Human Factors issues</p>	<p>b) Provide all relevant industry publications /maintenance regulations /orders and standards and practices.</p> <p>c) Set work quality acceptance criteria</p> <p>2. Ensure job steps are coordinated to remove wasted time and resources</p> <p>3. Design the work activities, work flow and documentation content to prevent Human Factor issues leading to problems</p>
6	Do work and review performance for feedback	<p>1. Work activity is organised with other involved personnel, allowing for relevant human factors and using relevant communication processes to ensure safe and appropriate sequencing of tasks.</p> <p>2. All necessary documentation related to job planning and progress is completed, and recorded in</p>	Maintenance required on operating plant and equipment	<p>1. a) Develop planning bar charts</p> <p>b) Communicate and inform relevant people of planning progress</p> <p>c) Chair and conduct planning meetings</p> <p>d) Collect and collate parts and materials for planned jobs</p> <p>e) Liaise with external resources and Contracted Services</p> <p>f) Inform Scheduler and Maintenance Crew Supervisor of the fixed week planned work</p> <p>g) Create and produce work backlog reports</p>	<p>1. a) Communication methods and planning information transfer tools</p> <p>b) Communicating up and down the organisation</p> <p>c) Organising and conducting Planning meetings</p> <p>d) Stores and inventory management and control for planned work</p> <p>e) Working with and informing Contracted Services</p> <p>f) Working with the Scheduler and Crew Supervisor</p>	<p>1. a) Work coordination tools and methods are deployed so personnel at all levels throughout the operation are aware of the impact of a job on their work</p> <p>b) External resources and services are coordinated and kept informed of job progression through backlog</p> <p>2. a) Work Pack fully compiled and all necessary information and documents to complete the job</p>

Maintenance Planning Course Modules Content

Plan and Prepare Maintenance Work Activities Learning Plan

No	Element	Unit Performance Criteria (Key Learning Outcomes)	Conditions Prevailing	Learning Task	Training Content	Required Standard
		accordance with (your) relevant industry publications /maintenance regulations /orders and standards and practices. 3. Performance feedback is sought to confirm outcomes are in agreement with task requirements and specifications. 4. All necessary documentation relevant to the task is completed and stored.		h) Create, produce and distribute resources planning reports i) Monitor work order backlog duration 2. a) Confirm all necessary documents and statutory records are present in the work pack 3. a) Chair and conduct 'lessons learned' meetings to improve planning process b) Review planning KPIs performance at planning meetings c) Present monthly reports and KPI charts 1. a) Record relevant work history in appropriate databases b) Record statutory and regulated equipment history c) Store necessary records for the life of the equipment 4. d) Archive old work orders	g) – i) Creating and using a range of planning reports 2. a) Review job preparation readiness and work pack content is complete 3. a) Learning from bad and good workplace outcomes b) – c) Management reporting requirements 1. a) – b) Maintaining information databases c) Statutory recording requirements 4. d) Archiving history and equipment records requirements	without interruption are present b) All requirements to collect job and equipment condition history are in Work Pack 3. a) Planning process, job coordination and Work Pack documentation are improved b) Job Plan task times reduce and work quality accuracy improves 4. a) Work and cost history, technical and engineering information, and job planning databases are kept constantly up-to-date b) Documents and records are controlled and managed

NOTE: Some course content coverage is extracted from the following Australian NTIS training units:

1	MEA103A	Plan and organise work activities	Part of Aero-skills Training Package
2	UTGNGS003A	Plan and organise work activities	Part of Gas Industry Training Package