



## Maintenance Management Master Processes Learning Plan

**Purpose:** Learn how to design and build maintenance management processes so they operate most effectively and efficiently, and achieve the best business outcomes with your maintenance resources and for your plant and equipment.

No	Element	Unit Performance Criteria (Key Learning Outcomes)	Conditions Prevailing	Training Task	Training Content	Required Standard
1	Module 1 – Maintenance Management Overview	<ol style="list-style-type: none"> <li>1. Maintenance Management Overview</li> <li>2. Process Engineering</li> <li>3. Process monitoring and measuring</li> <li>4. KPI Frequency plotting</li> <li>5. Process Re-engineering</li> <li>6. Maintenance Management top level process</li> </ol>	Traditional maintenance environment and practices prevail	<ol style="list-style-type: none"> <li>1.               <ol style="list-style-type: none"> <li>a) Introduce Maintenance and its purpose</li> <li>b) Cost of operating equipment failure</li> <li>c) Monitoring maintenance management performance</li> <li>d) Explain maintenance strategy development</li> <li>e) Equipment reliability management</li> <li>f) Computerised Maintenance Management System</li> </ol> </li> <li>2.               <ol style="list-style-type: none"> <li>a) Introduce business process design</li> <li>b) Explain the behaviour of business processes</li> </ol> </li> <li>3. Identify how to monitor and measure a process and its individual steps</li> <li>4.               <ol style="list-style-type: none"> <li>a) History performance information</li> <li>b) Convert historic data into a frequency curve</li> </ol> </li> <li>5.               <ol style="list-style-type: none"> <li>a) identify process and process step risk</li> <li>b) Control process risk</li> </ol> </li> <li>6. Develop top level maintenance management process</li> </ol>	<ul style="list-style-type: none"> <li>• The Purpose of Maintenance</li> <li>• Plant and Equipment Life Cycle</li> <li>• Defect and Failure True Cost</li> <li>• Risk Management Fundamentals</li> <li>• Work Process Improvement</li> <li>• Equipment Criticality Analysis</li> <li>• Maintenance Strategy Selection</li> <li>• Failure Mode Effects Analysis (FMEA)</li> <li>• Equipment Reliability Basics</li> <li>• Equipment Care Standards</li> <li>• Maintenance Types</li> <li>• Precision Maintenance</li> <li>• CMMS</li> <li>• Behaviour of a Business System and Processes</li> <li>• Process Mapping and Process Measurement</li> <li>• Benchmarking and Performance Indicators</li> <li>• Methods of Process Improvement</li> <li>• Solutions for Maintenance and Operating Processes</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a maintenance management process</li> <li>• Collect historic maintenance data and develop the frequency distribution curve</li> <li>• Analyse the frequency plot and historic data to extract useful business intelligence</li> <li>• Propose and justify adoption of recommendations to change maintenance processes and/or strategy</li> <li>• Write a sound business case to support required changes and identifying major benefits to the organisation</li> </ul>



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2	Module 2 – Work Identification Process	1. Identifying maintenance work 2. Maintenance Planner involvement in work identification 3. Types of maintenance work 4. Maintenance Job Scope-out 5. Maintenance Job Work Pack contents	Traditional maintenance environment and practices prevail	1. What to consider when investigating maintenance work 2. How the Maintenance Planner develops the solution and approach to do a job 3. Where maintenance jobs come from, and their work categories that 4. The approach and considerations when scoping maintenance work 5. The necessary information needed by the Maintainer to do and complete the job	<ul style="list-style-type: none"> <li>• Maintenance Work Identification</li> <li>• Maintenance Work Preparation</li> <li>• Maintenance Work Identification metrics</li> <li>• Maintenance work planning considerations</li> <li>• Maintenance workflow</li> <li>• Maintenance job types</li> <li>• Work backlog</li> <li>• Selecting maintenance jobs to do</li> <li>• Standardised work</li> </ul>	<ul style="list-style-type: none"> <li>• Develop maintenance work identification process</li> <li>• Identify risks to the successful completion of the process</li> <li>• Re-engineer the process to prevent risks</li> </ul>



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3	Module 3 – Work Order Prioritization Process	1. Prioritize maintenance jobs	Traditional maintenance environment and practices prevail	1. a) Understand equipment risk uncertainty how and why it occurs b) Use the Job Risk Matrix c) Do risk based work order priority	1. a) Changes in equipment condition and health b) Movement in equipment risk c) Setting work order priority	<ul style="list-style-type: none"> <li>• Develop maintenance work identification process</li> <li>• Identify risks to the successful completion of the process</li> <li>• Re-engineer the process to prevent risks</li> </ul>



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4	Module 4 – Unscheduled Work Process	1. Recognise unscheduled work 2. How unscheduled work arises 3. The effect of unscheduled work 4. Address how to handle unscheduled jobs	Traditional maintenance environment and practices prevail	1. The difference between scheduled and unscheduled 2. Describe how unscheduled work occurs 3. Understand the impact of emergency and breakdown work 4. Addressing unscheduled work when it arises	<ul style="list-style-type: none"> <li>• Definition of unscheduled maintenance</li> <li>• Defects cause failures</li> <li>• Impact of unscheduled jobs on production and maintenance plans</li> <li>• The strategy and focus to reduce unscheduled work</li> </ul>	<ul style="list-style-type: none"> <li>• Develop unscheduled maintenance work process</li> <li>• Identify risks to the successful completion of the process</li> <li>• Re-engineer the process to prevent risks</li> </ul>



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5	Module 5 – Maintenance Planning process	1. Understand Maintenance Planning 2. Develop the Maintenance Planning process	Traditional maintenance environment and practices prevail	1. a) Purpose of maintenance planning b) Describe a planning system c) Activities in planning work d) Information for planning work e) Purpose and content of maintenance work procedures f) Procurement of parts and services g) Parts store management basics h) Project Management of maintenance jobs 2. The steps in the maintenance planning process	<ul style="list-style-type: none"> <li>• Planning Systems – for office and information management</li> <li>• Work Quality Assurance</li> <li>• Parts Purchasing and Management</li> <li>• Specifying Job Procedures for Reliability</li> <li>• Human Error and Human Factors</li> <li>• Project Management – plan/prioritize/control activity</li> <li>• Work Planning Process – Plan/Prepare/Do/Check/Act</li> </ul>	<ul style="list-style-type: none"> <li>• Develop maintenance work planning process</li> <li>• Monitor and measure individual process step performance</li> <li>• Monitor and measure whole of process outcomes</li> </ul>



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6	Module 6 – Maintenance Scheduling Process	1. Understand Maintenance Scheduling 2. Develop the Maintenance Scheduling process	Traditional maintenance environment and practices prevail	1. a) Purpose of maintenance scheduling b) Describe a scheduling system c) Activities in scheduling work d) Information for scheduling work e) Balancing production and Maintenance needs f) Coordinating the workload g) Scheduling maintenance work in the Production Plan h) Preparing and pre-work for scheduled jobs i) Feedback and improvement 2. Design the maintenance scheduling process	<ul style="list-style-type: none"> <li>• The Work Scheduling Process</li> <li>• Scheduling Work</li> <li>• Production and Maintenance Partnership</li> <li>• Role of the Supervisor</li> <li>• Pre-job Start Preparations</li> <li>• Backlog Management – the ‘big picture’</li> <li>• Reducing the Risk of Problems on the Job</li> </ul>	<ul style="list-style-type: none"> <li>• Develop maintenance work scheduling process</li> <li>• Monitor and measure individual process step performance</li> <li>• Monitor and measure whole of process outcomes</li> </ul>



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7	Module 7 – Maintenance Execution Process	1. Allocate resources to a maintenance job 2. Do the work safely and correctly, right-first-time	Traditional maintenance environment and practices prevail	1. a) Explain the purpose and functions of the Maintenance Supervisor b) Understanding the work requirements and the job schedule c) Preparing to start the work d) Proper job completion and close-out e) Feedback and improvement f) Monitoring and measuring work success 2. Design the maintenance scheduling process	<ul style="list-style-type: none"> <li>• Role of the Maintenance Supervisor</li> <li>• Planner and Scheduler coordination</li> <li>• Lists of pre-start tasks and checks</li> <li>• Lists of post-job tasks and checks</li> <li>• What to monitor and measure</li> <li>• Collecting performance information and feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Develop maintenance work execution process</li> <li>• Monitor and measure individual process step performance</li> <li>• Monitor and measure whole of process outcomes</li> </ul>



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8	Module 8 – Maintenance Close-Our Process	<ol style="list-style-type: none"> <li>1. Capture all the useful information from maintenance work</li> <li>2. Learning from job outcomes and improving maintenance processes</li> </ol>	Traditional maintenance environment and practices prevail	<ol style="list-style-type: none"> <li>1.               <ol style="list-style-type: none"> <li>a) Identify how maintenance work can be improved</li> <li>b) Checking compliance to the plan and the schedule</li> <li>c) Checking work process performance</li> <li>d) Gathering data and history on the maintained equipment</li> <li>e) Identifying equipment failure root causes</li> </ol> </li> <li>2.               <ol style="list-style-type: none"> <li>a) Putting learnings into future maintenance work</li> <li>b) When to upskill people</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Issues to identify from maintenance work execution</li> <li>• Monitoring and measuring work compliance</li> <li>• Post mortems on equipment</li> <li>• Evidence of parts failure causes</li> <li>• Evidence of poor workmanship quality</li> <li>• Creative Disassembly recording</li> <li>• Feedback information to reduce degradation</li> </ul>	<ul style="list-style-type: none"> <li>• Develop maintenance work close-out process</li> </ul>





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9	Module 9 – Weekly Work Management Process	1. Getting through the maintenance work load and backlog 2. Allocating resources 3. Doing work safely	Traditional maintenance environment and practices prevail	1. a) Identifying backlog work types b) Allocating responsibility for the backlog 2. a) Craft capacity planning b) Managing and controlling the backlog 3. a) Follow the maintenance processes b) Master the maintenance processes	<ul style="list-style-type: none"> <li>• Backlog management practices</li> <li>• Keeping the backlog clean and current</li> <li>• Setting work expectation and requirements</li> <li>• Keeping control of the maintenance crew</li> <li>• Change Control and Job Risk Control</li> <li>• Delivering the maintenance process properly and masterly</li> </ul>	<ul style="list-style-type: none"> <li>• Develop weekly maintenance work management process</li> </ul>



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10	Module 10 – Shutdown Work Management Process	1. Commonality between projects and shutdowns/turnarounds 2. Shutdown preparation and procurement 3. Executing and running the Shutdown/Turnaround	Traditional maintenance environment and practices prevail	1. a) Project management methodology b) Major factors for shutdown success 2. a) Key areas to control b) Identify the Critical Path c) Adopt an integrated approach d) Set shutdown criteria for work acceptance e) Identify and remove risks to completion 3. a) Keeping everyone informed b) Tracking progress c) Feedback and improvement	<ul style="list-style-type: none"> <li>• Maintenance Shutdowns are a Project</li> <li>• Shutdown Execution process steps               <ul style="list-style-type: none"> <li>• Job Screening (including Risk &amp; Priority)</li> <li>• Scoping (<b>what</b> to do)</li> <li>• Planning (<b>how</b> to do it)</li> <li>• Scheduling (<b>when</b> to do it)</li> <li>• Execution (doing it)</li> <li>• Close-out</li> </ul> </li> <li>• Shutdown Maintenance Workflow to maximize shutdown success</li> <li>• Tracking and monitoring shutdown maintenance events</li> <li>• Post Shutdown review and process improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Develop the Maintenance Shutdown/Turnaround Process</li> </ul>