

The methods, practices, systems for high productivity, outstanding equipment reliability, and maximum 'tool time' from maintenance crews

Maintenance Planning and Scheduling for Reliability Training Course

Huge improvement in maintenance task productivity and job accuracy

Discover the maintenance planning and scheduling methods and tools that hugely improves task productivity and work accuracy. Learn to get production plant back into operation faster and running for longer. Create new Pacesetter maintenance planning and scheduling performance like that in the table below in your operation.

Key Performance Indicator	Poor Performance	Pacesetter Performance
'Hands on tools time' % possible	20	50
Jobs per man-day (Mech, I/E)	1 , 4	3 , 8
Testing jobs overdue %	20	2
Mechanics per Planner	8 - 10 : 1	20 - 27 : 1
Maintenance Workforce Weeks Backlog	8 – 10 weeks	4 weeks
% Planned Work	< 50%	> 80%
Schedule Compliance	< 50%	> 90%
Urgent Job Requests	70%	5%

Learn the best practices and methods, the specific requirements and the systems that need to be in place (and in use) to get the most from planning and scheduling. The great Chinese philosopher Confucius said, *"In all things, success depends on previous preparation, and without such preparation there is sure to be failure."* That is definitely the case in maintenance planning. Too much time, production and money can be lost if the preparation is not done well. Maintenance planning done correctly maximises 'tool time', by ensuring jobs are ready (with all resources and information at-hand) so tradesmen walk from job to job uninterrupted, doing their work with 100% right-first-time quality. High quality planning leads to top quality performance.

Being prepared also applies to the people doing planning and scheduling

It takes more to be a top Maintenance Planner than simply knowing how to maintain plant and equipment. There is a great difference between being a top Tradesman and a top Planner. The skill sets are completely different. The decisions required from a Planner involve strategic thinking and business systems optimisation. This course will prepare Attendees to be top-class planners by teaching them the systems, the information, the knowledge and the skills they need to use to be successful in this incredibly important roll in a company. Documented evidence confirms that good maintenance planning and scheduling delivers you the following benefits:

- Increase maintenance work performed by up to 100% above reactive
- 'Tool time' can rise to 50% of maintainers' day
- Planned work is 4 – 12 times more efficient than reactive
- Planned work is 3 – 9 times less expensive than reactive
- On larger jobs each hour of planning saves 3 – 5 hours execution time
- Up to 90% of your work can be planned
- Up to 95% of planned work can be done when first scheduled

This Maintenance Planning and Scheduling Course will teach you how to prepare work, coordinate resources and people, install the right systems and schedule maintenance activities so your work runs smoothly, people deliver high-quality workmanship and are highly productive, and your machines and equipment operate reliably for longer.



Solve your maintenance planning and scheduling problems fast

At a time when the engineering workforce is growing older and retiring, during an industry-wide and world-wide skill shortage, this course teaches your maintenance planners how to do their job well and to use fewer maintainers while lifting operating uptime and throughput for less cost. The course trains Attendees how to apply the key points and best practices of planning and scheduling immediately on their return to work. Substantial and comprehensive course notes and the full PowerPoint presentation are given to every attendee for future reference.

Great testimonials and unqualified support for the course content and its value to maintenance planners and their industrial operations:

“Very good – has changed the way I think about maintenance planning.” – “Helped to give me confidence that I’m heading in the right direction in planning.” – “Usually I find if one thing of use is learnt per day then value is achieved; value has been achieved! Also good notes, CD and risk analysis template.” – “Some very good concepts to take back to work which could help our business.” – “Very interesting, more than enough information for a 3-day course.” – “The course members from industry were very impressed with the content.” – “Being a planner for only three months, I found this course excellent and relevant to my position.” – “Heaps of information put out.” – “Very informative. Eye-opener in some areas.” – “Excellent – will help with future job prospects.”

BHP Billiton (Iron ore miner), **Fortescue Metals Group** (Iron ore miner), **Woodside Energy** (Oil and Gas producer), **BGC Construction** (Building products manufacturer), **Wesfarmers Premier Coal** (Open-cut coal miner), **Pearlsteet** (Maintenance services), **Albany Pine Plantations** (Woodchip supplier), **Esperance Port Authority** (Bulk materials), **Talison Mining** (Tantalum Miner), **Anglogold Ashanti** and **KCGM** (Gold Mining), **Onesteel** (Steel Roll Mill), **Hans Smallgoods**, **Hyne Timber** (Saw Mill), **Defence Materiel Organisation**, **Offshore Su Tu Den Group** (Vietnamese O&G)

Course Content Overview

Day 1 – Maintenance Methodology and Reliability: The Foundations of Maintenance Planning

The Purpose of Maintenance
 Defect and Failure True Cost
 Purpose of Maintenance Planning & of Scheduling
 How Maintenance Planning & Scheduling Reduce Costs
 Risk Management Fundamentals
 Plant and Equipment Life Cycle
 Equipment Criticality Analysis
Activity 1 - Equipment Criticality Example
 Failure Mode and Effects Analysis (FMEA)
Activity 2 – FMEA example
 Equipment Reliability Basics
 Important Engineering & Equipment Care Standards
Activity 3 –Applicable Maintenance Standards
 The 6 Maintenance Types and when to use them
 Precision Maintenance for Maximum Failure-Free Life

Day 2 - Work Planning

Activity 4 –Planning Activity Example A
 Review and Discussion of Activity 4
 Necessary Planning Office Systems and Methods
 Data Capture for Maintenance
 Specifying Workmanship Standards
 Inventory Purchasing and Management
 Project Management Principles and Practices
 The Work Planning Process
 Shutdown and Outages Planning
Activity 5 –Planning Activity Example B

Review and Discussion of Activity 5

Day 3 – Work Planning (continued) and Scheduling

Failure and Defect Prevention Maintenance Procedures
 Controlling Work Process Variation
 Standardized Planning and Scheduling Procedure
Activity 6 – Develop Standardized Planning Procedure
Activity 7 –Planning Activity with Standardized Procedure
 Review and Discussion of Activity 7
 Planning and Maintenance Key Performance Indicators
Activity 8 – Using Performance Indicators

Work Scheduling

Visual Management
 Relationship Building
 Production Requirements and Limits
 The Production Plan
 Manpower Scheduling
 Resources Scheduling
 Preparations before the Job Starts
 Addressing On-site Issues and Changes in the Plan
 Monitoring Job Performance and Schedule
 Backlog Management
Activity 9 – Scheduling Work so it is Done Right & On-Time
 Review of Scheduling
 Review of Course and Key Issues
Activity 10 - Trainee Workplace Example Assessment
 Feedback Form
 End of Course

Detailed Maintenance Planning and Scheduling Training Content

Day 1

Maintenance Methodology and Reliability: The Foundation of Maintenance Planning

The Purpose of Maintenance

- Sustaining Production
- Equipment Reliability
- Failure Avoidance
- Defect Elimination

Defect and Failure True Cost

The Purpose and Role of Maintenance Planning and of Scheduling

How Maintenance Planning and Scheduling Reduce Costs

- The Strategic Business Importance of Planning Maintenance

Plant and Equipment Life Cycle

- Life Cycle Costs / Life Cycle Profits
- Equipment Condition Monitoring

Risk Management Fundamentals for Maintenance

Equipment Criticality Analysis – identify plant and equipment at risk

Activity 1 – Do a simple Equipment Criticality example

Failure Mode and Effects Analysis (FMEA) - identify parts at risk and necessary maintenance.

Activity 2 – Do a simple FMEA example

Equipment Reliability Basics

- Maximum Allowable Downtime
- Calculate True Downtime Cost per Hour
- Increasing Equipment Reliability
- Increasing System Reliability

International Engineering and Equipment Care Standards

- Alignment and Distortion
- Lubrication
- Balance and Vibration
- Bearing/Shaft Clearances
- Looseness
- Contamination and Cleanliness

Activity 3 – Identifying Applicable Engineering and Maintenance Standards for the Site

Maintenance Types

- Preventive, Predictive/Condition Monitoring, Breakdown, Corrective, Block (Shutdown), Opportunity
- Proactive Inspection and Detection Rounds/Watch-keeping

Precision Maintenance for Maximum Failure-Free Life

- Creative Disassembly
- Precision Assembly
- Precision Installation
- Using Condition Monitoring to Test Work Quality and Measure Machine Baseline Condition

Day 2

Work Planning

Activity 4 – Planning Activity with Example A

Review and Discussion of Activity 4

Necessary Planning Office Systems and Methods

- Work Order Costing
- Plant and Equipment Information
- Planning Documents and their Control
- Equipment Records and their Control
- Job Procedures
- Job Records and their Control
- Equipment Performance Trending
- Job Performance Trending
- Track Planning Performance & Benefits
- Job, Work and Personnel Safety

Specifying Workmanship Standards

- Standardized Work
- Setting the Standards for a Job
- Identifying Necessary Skills for a Job
- Failure Preventing Job Procedures

Data Capture for Maintenance

Inventory Purchasing and Management

- Refurbishment Decisions and Costs
- Important Purchasing Information
- Good Storage Practices
- Working with and Developing Suppliers

- Useful Store Control Practices

Project Management Principles and Practices

- Identify Work Priorities
- Set Project Goals and Objectives
- Specifications and Contracts
- Bar (Gantt) Charts
- PERT Charts (Critical Path)
- Checkpoints and Checklists
- Preparing for All Eventualities

The Work Planning Process

- Site Investigation
- Root Cause Analysis
- Failure History
- The Required Documentation
- Specifying Important Information to Capture During the Job
- Developing Job Procedure with Required Outcomes and Measures
- Specifying Materials
- Specifying Subcontract Resources
- Specifying Tools and Ancillary Equipment
- Specifying Human Resources
- Build-in Time for Quality Work
- Developing the Job Plan and Times
- Setting Job Performance Requirements
- Specifying Job Quality Standards
- Safety Considerations
- Calculate Maintenance Cost vs Budget
- Compiling the Job Pack
- Job Planning and Review Meetings
- Preparations Before the Job Starts
- Complete the Checklists
- Job and Workmanship Feedback
- Post-Job Review
- ‘Lessons Learnt’ Meeting
- Continuously Improving the Planning

Shutdown and Outages Planning

- Using Project Management Methodology

Activity 5 – Planning Activity with Example B

Review and Discussion of Activity 5



Day 3

Failure Prevention and Defect Elimination Maintenance Procedures

Controlling Work Process Variation with ACE 3T

Standardizing Planning Procedures and Scheduling Procedures

Activity 6 – Develop Standardized Planning Procedure

Activity 7 – Planning Activity with Example ‘B’

Review and Discussion of Activity 7

Planning and Maintenance Key Performance Indicators

- Maintenance Effectiveness Indicators
- Equipment Performance Indicators
- Production Indicators
- Planning Indicators
- Job Quality Indicators
- Supplier Performance
- Inventory/Store Management
- Safety
- Top-performance Industry Benchmarks

Activity 8 – Setting, Measuring and Trending the Types of Performance Indicators

Work Scheduling

Visual Management in All Occasions

Relationship Building

- Identify planning/scheduling value add
- Bring groups together to cooperate
- Request others’ improvement ideas

Production Requirements and Limits

The Production Plan

- Liaison with Production
- Scheduling into the Production Plan

Manpower Scheduling and Resources Scheduling

Preparations before the Job Starts

Addressing On-site Issues and Changes in the Plan with Team-based Risk Analysis

Monitoring Job Performance and Schedule

Backlog Management

Activity 9 – Scheduling to Get the Job Done Right First Time

Review of Course and Key Issues

Activity 10 – Workplace Example Assessment

Feedback Questionnaire

End of Course

