

MAINTENANCE PLANNING AND ASSET MANAGEMENT COURSE

'Includes Scheduling and Work Control'

ACCREDITED WITH 4CPD POINTS ACCREDITED NO. SAAMA2017048

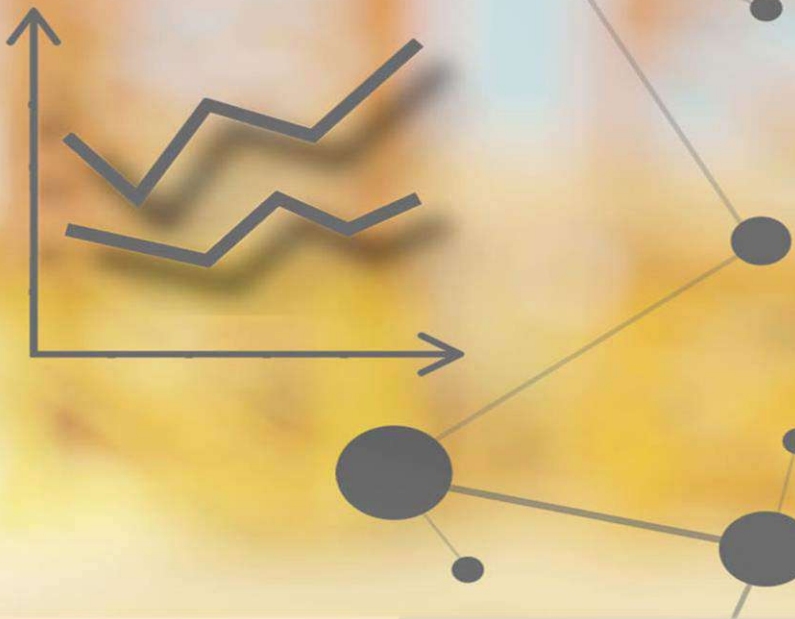


Facilitator: Gert Oberholster

Gert Oberholster has many years of experience in different aspects of Production, Projects, Logistics; Maintenance and Quality Management while being employed by various organisations. He is a business owner specialising in productivity training and consultation. He has 9 years' experience in university lecturing; facilitation; assessments; moderations; training; education and basic auditing. He presents for a very wide audience ranging from entry level to graduates. He has done courses in all major areas in South Africa; Swaziland; Namibia; Botswana; Zambia; Tanzania; Mali; Ghana and Dubai. Delegates connect well with him due to his experience; he started on the shop floor and has a personal one on one touch. He is passionate about people and developing their potential to the fullest.

Gert has experience in the Toyota Production System (TPS); Value Stream Mapping (VSM); Lean Manufacturing; Six Sigma and other uniquely developed productivity templates while working with Volkswagen; Mercedes; BMW; Nampak; Toyota and other dynamic organisations. He holds a degree in Project Management, and supporting qualifications in Production, Quality; Logistics and HR. He is the author of many training manuals and unique tools using experience and teamwork with other professionals. He has invented specific templates regarding wastes; teamwork; motivation; communication; and continuous improvement

Dates & Venue
25 - 28 January 2022 - Apollo Hotel - Johannesburg
22 - 25 February 2022 - Manhattan Hotel - Pretoria
22 - 25 March 2022 - Blue Waters Hotel - Durban
24 - 27 May 2022 - Manhattan Hotel - Pretoria



Target Audience

- Managers, supervisors and planners responsible for maintenance planning, scheduling and control activities.
- Maintenance and reliability engineers
- Engineers involved in extensions, upgrades, procurement of new equipment
- Maintenance Supervisors
- Asset Managers
- Facility Managers
- Master Craftsmen/Artisans
- Technicians
- Quality Managers; Assurance & Inspectors
- Operations Supervisors
- Maintenance Artisans
- Maintenance Supervisors
- Maintenance Managers:
- Logistics Supervisors & Managers
- Plant Managers:
- Plant Engineers:
- Maintenance Planners
- Management Information staff
- Project Managers:
- Risk Management Professionals
- Financial Managers:
- SHERQ staff responsible for safe handling of machinery and equipment
- Project Engineers,
- Procurement and supply chain managers.

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Course Synopsis

Maintenance and asset management strategies must evolve to support the technological requirements of modern equipment and the challenges of a competitive and legislated environment. The objective of maintenance over the last twenty years has steadily shifted from a 'prevention' approach to 'risk' based approach. Maximizing assets availability and reliability with the optimal cost are two conflicting objectives that each maintenance department needs to achieve. However maintenance planning and scheduling is not only about using project management software to schedule tasks. Beside planning and scheduling activities the planner needs to ensure that all logistics are provided for. Once the planning is done right, the next step will be to ensure that all the work orders are executed as per the plan and in compliance with all Health, Safety and Environment (HSE) guidelines as well as company policies and procedures.

In this course various techniques will be discussed that will assist you in due course to plan, schedule and control all your maintenance work orders for maximum effectiveness. The real focus of the course is on the useful techniques of reliability engineering used every day to improve operating and production performance through lower maintenance costs, less downtime, fewer equipment failures and higher production output. Learn how to deliver equipment reliability improvement using every-day reliability engineering to enrich your operating and maintenance processes. The training provides you with valuable and insightful knowledge, along with practical case studies and hands-on data analysis activities you learn from. This training is for people who want to lift the efficiency, productivity and output of their operating assets with successful reliability engineering methods.

Course Methodology

The course uses a mix of interactive and hands-on techniques. Beside the brief presentations by the consultant and the participants, the thrust will be on real life work related situations to develop maintenance schedules for preventive and breakdown jobs, calculate re-order points and optimal quantities of spare parts, evaluate maintenance initiatives, and develop the right maintenance KPIs.

Target Competencies

- Maintenance theory and practice
- Maintenance work processes
- Project management
- Financial evaluation
- Planning and logistics theory and practice
- Performance management
- Adaptability
- Asset management
- Risk identification
- Contingency planning
- Asset life cycle costing
- Maintenance planning

Training Objectives

By the end of the course, participants will be able to:

- Explain the challenges and objectives facing maintenance organizations today
- Demonstrate the importance of work order systems and use techniques for time estimations and priority assignments
- Prepare a preventive maintenance program
- Apply project management techniques to effectively manage major maintenance activities and shut downs
- Use capital budgeting techniques to evaluate maintenance capital expenditures
- Demonstrate understanding of how to maintain the optimal stock levels of spare parts to ensure operational continuity
- Prepare the right Key Performance Indicators (KPIs) s to evaluate and improve performance in maintenance
- Contribute to the generation and implementation of Asset Management policy, strategy, objectives and plans within their organizations
- Participate in asset-related risk identification, analysis, management processes, and contingency planning
- Understand the asset lifecycle and the role of appropriate tools to optimize the performance, risk and cost of assets
- Identify the information and performance measures needed for effective asset management, and evaluate the impact of asset information systems
- Understand the financial implications of asset and asset management decisions for their organization, and translate technical issues into business implications
- Understand Maintenance Planning: It's Role in the Business and its Foundation Basics. Maintenance history; present and future
- Unpack the Purpose and Role of Maintenance Planning and Scheduling; including Asset Management
- Equipment Criticality Analysis – identify plant and equipment at risk and a discussion on the use of technology as a tool for Optimization of Operations and Maintenance activities
- Maximize the efficient use of work time, material, and equipment; out with the old and in with the new
- Maintain the operating equipment at a responsive level to the need of production in terms of delivery schedule and quality. Aid production to achieve **TAKT** and **Cycle** times
- Determine the correct load on machines and equipment – eliminate overload or under load. This leads to a correct make or buy decision on the strategic management level
- Use maintenance as an effective method of cost reduction and improving uptime.

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4 Day Course Content

Day One

Objectives of maintenance

- Definition of maintenance and asset management
- Challenges and objectives of maintenance
- The modern maintenance strategy
- Maintenance windows
- Maintenance methods
- Types of maintenance
- Classification of roles in maintenance
- Customer service in maintenance:

Maintenance A – Z

- Maintenance? History; Present; Future.
- What Planning mainly is and what it is not.
- The author has developed solutions to the 12 most critical wastes using a combination of the Toyota Production System; Six Sigma and Lean. All done on practical Excel worksheets.
- Quality and Productivity; Effectiveness and Efficiency; the author has developed easy to use statistical process control tools (Excel).
- Desired Level of Effectiveness including the OEE; MTTR; MTBF; FR calculations.
- Weibull lifespan and failure prediction.

Maintenance Objectives and Methodologies

- The purpose and objectives of Maintenance explained in relation to the entire business.
- The Purpose and Role of Maintenance Planning and Scheduling; considering factors such as capacity; utilization & Overall Equipment Effectiveness.
- Failure Mode Effect Analysis (FMEA).
- Reliability A – Z and easy calculations.
- Downtime analysis examples.
- Standardization of all maintenance work.

Strategic Importance of Planning Maintenance

- The Asset Management 'Journey'
- Choosing a Maintenance Methodology
- Plant and Equipment Life Cycle, Life Cycle Costs / Life Cycle Profits / Value depreciation
- Equipment Conditions monitoring (trend analysis) practice on Excel sheets.
- Consideration of Preventive Maintenance, Predictive Maintenance, and Project Work
- Condition-based Maintenance – 5 Senses.

Day Two

Maintenance Planning and Measurements:

- What is maintenance planning?
- Maintenance Performance Prediction Indicators
- Equipment Performance Indicators.
- Planning Indicators – who; when; what; how why with 8D and IS-IS NOT Excel template
- Job Quality Indicators – What is QC; QA and QM

Advanced Principles of Scheduling

- Skills required for Scheduling
- Job Records and their Control
- Equipment Performance Trending
- Job Performance Trending
- Site Investigation
- The critical path (CPM)
- Bar Charts & Gantt Charts
- Resource smoothing
- Managing the Critical Path
- Weekly Scheduling
- Forecasting work hours

- Sorting work orders and Allocating work orders
- Formal Weekly Schedule Meeting
- Staging Parts and Tools; What, Where and
- Who to stage, the process of staging
- Key concepts in scheduling for outages & Planning work orders for outages
- Quotas, Benchmarks, and Standards Addressed

The Work Planning Process

- Work Order System; Scoping a Job
- PDCA Excel exercises: Prepare the resources
- Engineering Assistance or Reassignment
- Work Order Form; Coding Work Orders
- Estimating Work Hours and Job Duration
- Purchasing, Storeroom, reserving, and staging
- Special tools; jigs and innovations.

Planning and Maintenance Key Performance Indicators

- Planning and Maintenance Key Performance Indicators (KPI)
- Maintenance Performance Prediction Indicators (MTBF group calculation)
- Maintenance Effectiveness Indicators (various)
- Equipment Performance Indicators (Specifications; tolerances; clearances)
- Production Performance Indicators (TAKT; Cycle; Capacity; Flow; Load).
- Planning Indicators – who; when; what; how why with 8D and IS-IS NOT Excel template
- Job Quality Indicators – What is QC; QA and QM really? How does it work? Toyota Way

Day Three

Necessary Planning Office Systems and Methods

- Work Order Costing
- Plant and Equipment Information
- Planning Documents and Equipment Records and their Control
- Job Procedures – organising and reorganising.
- Job Records and their Control
- Equipment Performance Trending

Planning and scheduling of major maintenance WOS and shutdowns

- The unique challenge of maintenance shutdowns
- Importance of a clear Work Order (WO) scope definition
- Work Breakdown Structure (WBS)
- Methods for building an effective maintenance database
- Critical Path Method (CPM)
- Work order crashing
- Resource scheduling and levelling

Risk Management Fundamentals

- Reliability and Risk defined
- The 12 Maintenance Types and when to use them
- Plant and Equipment Life Cycle
- Equipment Criticality Analysis
- Failure Mode and Effects Analysis (FMEA)
- Equipment Reliability Basics
- Creating high Equipment Reliability
- Important Engineering & Equipment Care
- Standards
- Precision Maintenance for Maximum Failure-Free
- Life Span on equipment
- Equipment Criticality

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Operational Context and Functional Analysis

- Define the operating context
- Identify primary, inherent and functions
- Determine desired versus designed performance expectations
- Develop a company specific risk grading matrix
- Practical: Identifying the 12 wastes

Day Four

Risk Based Maintenance Strategies/Tactics/Policies

- Risk based policy Decision Making Diagram
- Types of preventive maintenance and how to select appropriate intervals
- Types of condition based maintenance and how to determine the PF interval
- Function testing/failure finding and how to determine the interval
- One-time changes to improve reliability: Physical, procedural, human capability and maintainability
- Risk tolerance and residual risk
- Maintenance Strategy Selection
- Selecting Preventive and Predictive Tasks to maintain reliable plant equipment in the most cost-effective manner while meeting the challenge of regulatory compliance.
- Operating Risk Reduction with RCM to identify the most practical, cost-effective and technically correct tasks in maintaining equipment function
- Precision Maintenance and how workmanship quality produces high reliability
- Practical: Select and define appropriate – maintenance policies/tactics/strategies

The Asset Lifecycle

- Introducing the Asset Lifecycle
- Design and acquisition
- Commissioning and handover
- Strategic approach to operations and maintenance
- Understanding and managing failures – Introduction to tools and techniques
- Root Cause Analysis (RCA)
- Failure Mode and Effect Analysis
- Managing 'random' failure
- Spares management
- Decommissioning, disposal and renewal
- Asset life cycle strategies – Alignment and optimization
- Developing and optimizing AM plans
- Constraints and shutdown optimization

Asset Management enablers

- Asset information – Overview
- Asset data – Fundamentals
- Dynamic data - Condition and performance
- Collecting and using tacit information
- Information systems – Introduction and overview
- Organizational structures for AM
- Assessing and developing AM competencies
- Leadership in AM

Logistics Planning

- Equipment Classification and Identification
- Document Identification and Classification
- Requirements Planning and forecasting
- Maintenance Work Prioritisation
- Maintenance Logistics Planning
- Equipment Criticality Grading
- Maintenance Task Detail Planning
- Maintenance Work Estimating

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