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THE LEADING TRAINING PROVIDER

Maintenance & Reliability Management

Maintenance Technologies: Monitoring, Inspection & Analysis

Course Introduction

Modern Maintenance Technologies provides all the delegates great opportunities to optimise the performance of their systems and equipment to achieve maximum return on investment (ROI). By reducing costs and downtime, while achieving high levels of safety and quality. However, with the rapid pace of change in maintenance, and the emergence of many new concepts, methods and technologies, it is often difficult for managers with maintenance responsibilities to judge which of these new technologies are most appropriate to their specific needs, and which will provide them with the greatest benefits in practice.

Basic maintenance philosophy

The very basic maintenance philosophy one cannot deny: clean, tight and lubricate and how to implement these correctly in almost all industries (an old maintenance approach to even ultra modern assets).

A good maintenance is a simple maintenance, an old good maintenance view even in the modern maintenance approach. This seminar provides an overview of a number of Modern Maintenance Technologies associated with equipment, systems, people and management. It describes both the background to each technology, and its practical application to achieve the best bottom-line results. The seminar looks at which areas of the maintenance manager’s responsibilities will benefit from individual technologies. It also shows how they can be integrated to support each other, how to choose an appropriate selection of technologies, and how to develop an action plan for their implementation.

Target Audience

- Facilities Engineer
- Facilities Engineering Manager
- Facilities Manager
- Facilities Specialist / Coordinator
- Health and Safety Engineer
- Maintenance Group Leader
- Maintenance Helper / Assistant
- Maintenance Manager
- Maintenance Superintendent
- Maintenance Supervisor
- Mechanical Reliability Engineer

- Network Reliability Engineer
- Operations and Maintenance Specialist
- Reliability Engineer

Learning Objectives

- Apply the appropriate Modern Maintenance Technologies which each of these Technologies contributes to Maintenance Efficiency and Performance.
- Develop an action plan to utilize these technologies in their own areas of responsibility, fitting them into the overall maintenance strategy, and measuring benefits
- Identify the Maintenance Optimization Best Practice Techniques and Identify the equipment failures and its implications to the operational organization.
- Design a Maintenance Plan for the upkeep and Maintenance Inspections of Static and Rotating Plant.
- Develop an action Plan to utilize these Technologies in their own areas of responsibility, fitting them into the overall Maintenance Strategy, and Measuring Benefits.
- Identify the world class maintenance standards and how to apply them and describe the importance of the maintenance strategy for plant maintenance activities.
- Develop and Implement KPI’s and benefits tracking tools and develop Organizational Competency related to Maintenance.

Course Outline

- **01 DAY ONE**

  Module (01) Challenging the Traditional Approaches

  - 1.1 The Road to Asset Management
  - 1.2 Cost/Benefit Decision
  - 1.3 Right Amount of Maintenance
  - 1.4 Using Decision Support Tools

- 1.5 Interruption Problems
- 1.6 Symptoms of Harmonic Problems
- 1.7 Symptoms of Transient Problems
- 1.8 General Approach

Module (02) Risk Based Maintenance (RBM)

- 2.1 Understanding Risk
- 2.2 The SEVEN Stage of RBM
- 2.3 Failure mode Effect & Criticality Analysis (FMECA)
- 2.4 Problem - Local Area Networks
- 2.5 Problem - High Neutral-Ground Voltages

• **02 DAY TWO**

Module (03) Statistical Failure Analysis

- 3.1 Importance of History Records
- 3.2 Pareto Effects
- 3.3 Elementary Statistics
- 3.4 Collection, Analysis and Interpretation
- 3.5 Reliability Models
- 3.6 Maintenance Cost Optimization

Module (04) Vibration Analysis

- 4.1 Overall and Spectral Representation
- 4.2 The Big FIVE Machine Faults
- 4.3 Detecting Faults using Vibration
- 4.4 Diagnosing Faults using Vibration
- 4.5 Essentials of Vibration Monitoring

• **03 DAY THREE**

Module (05) Condition Based Maintenance

- 5.1 What to Monitor and Where?
- 5.2 Condition Monitoring Systems
- 5.3 Trending of Monitored Data
- 5.4 Frequency of Measurement
- 5.5 Parameter Symptom Limits
- 5.6 Remaining life Prediction

Module (06) Machinery Condition Monitoring

- 6.1 Purpose Condition Monitoring

- 6.2 Thermal Monitoring
- 6.3 Lubrication Monitoring
- 6.4 Essential of Vibration Monitoring
- 6.5 Operation Parameters Monitoring
- 6.6 Physical and Visual Monitoring

• **04 DAY FOUR**

Module (07) Maintenance Logistics & Cost Control

- 7.1 Managing Maintenance Spare Parts & Logistics
- 7.2 Optimizing Spare Parts Inventory Levels
- 7.3 Maintenance Budgeting
- 7.4 Controlling Maintenance Cost
- 7.5 Life Cycle Cost Concepts
- 7.6 Utilization Resources

Module (08) Applying RBM and RCA

- 8.1 Failure Patterns
- 8.2 Choosing the Appropriate Maintenance Task
- 8.3 The Role of Operators, Autonomous Maintenance
- 8.4 Finding Root Causes to improve Maintenance
- 8.5 Root Cause Analysis (RCA)
- 8.6 Implement Effective Solutions

• **05 DAY FIVE**

Module (09) Maintenance Assessment & Benchmarking

- 9.1 Process Audits
- 9.2 Benchmarking & Assessments
- 9.3 What to improve & Goal Setting
- 9.4 Developing an Improvement Action
- 9.5 Monitoring and Communicating Results

Module (10) Performance Management Aspects

- 10.1 Continuous Improvement
- 10.2 Performance Management
- 10.3 Implementation Aspects
- 10.4 The Key Elements of Asset Management
- 10.5 Investment in People and Technology
- 10.6 Reliability and Operational Uptime of Process

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 13, 2025	April 17, 2025	5 days	4250.00 $	Qatar - El Doha
Aug. 25, 2025	Aug. 29, 2025	5 days	4950.00 $	Spain - Madrid
Oct. 26, 2025	Oct. 30, 2025	5 days	4250.00 $	Bahrain - Manama