

**Training Title**

**MODERN MAINTENANCE TECHNOLOGIES**

**Training Duration**

5 days

**Training Venue and Dates**

REF RM013	Modern Maintenance Technologies	5	06 - 10 September 2020	\$4,500	Dubai, UAE
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**In any of 5 star hotels. The exact venue will be informed once finalized.**

**Training Fees**

- 4,500 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

Language: English

**TRAINING OVERVIEW**

**TRAINING INTRODUCTION**

This programme has been designed to provide the concepts and knowledge in order to improve Machinery Productivity and their availability for useful purposes. Maintenance Best Practices are critical for every successful individual and company. It is the job of the maintenance professional to optimise the maintenance effort using a structured and systematic approach. This course covers all the fundamentals of Maintenance that a suitably qualified professional would be expected to carry out during his duty starting with the first steps and building up in a stair case fashion to a fully functional maintenance organisation

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.

This seminar provides an overview of 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

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each other, how to choose an appropriate selection of technologies, and how to develop an action plan for their implementation.

### TRAINING OBJECTIVES

The delegates will learn how:

- A solid understanding of Maintenance optimization best practice techniques
- An understanding of a range of equipment failures and their implications to the operational organisation.
- The ability to design a maintenance plan for the upkeep and maintenance inspections of static and rotating plant.
- A practical approach to developing an action plan to utilise these technologies in their own areas of responsibility, fitting them into the overall maintenance strategy, and measuring benefits
- To apply the appropriate Modern Maintenance Technologies
- Each of these technologies contributes to maintenance efficiency
- These technologies can interact with and support each other
- To achieve the best results in practicing these technologies
- To develop an action plan to utilise these technologies in their own areas of responsibility, fitting them into the overall maintenance strategy, and measuring benefits

### TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. The delegates will also be encouraged to raise their own questions and to share in the development of the right answers using their own analysis and experiences.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

### TRAINING OUTCOME

At the end of the course, the delegates will be able to:

- 1 Identify the maintenance optimization best practice techniques.
- 2 Identify the equipment failures and its implications to the operational organization.
- 3 Design a maintenance plan for the upkeep and maintenance inspections of static and rotating plant.

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- 4 Develop an action plan to utilize these technologies in their own areas of responsibility, fitting them into the overall maintenance strategy, and measuring benefits
- 5 Identify the world class maintenance standards and how to apply them.
- 6 Describe the importance of the maintenance strategy for plant maintenance activities.
- 7 Develop and implement KPI's and benefits tracking tools.
- 8 Develop organizational competence.

### DAILY CONTENT

The course content will include the following

#### Day 1

##### Introduction

Relationship between Maintenance and ISO 9001 , ISO 14001 , and OHSAS 18001

Maintenance Technology - What , Why , and How aspects

Failure of Machines and Inspection Based Failure Analysis

#### Day 2

##### Causes of Machinery Failure

Wear mechanisms

Fatigue

Fretting

Corrosion and electrolytic.

##### Fundamental Machine Problems

Balance problems

Alignment problems

Machinery mounting problems.

##### Component Failure

Plain bearings

Rolling element bearings

Couplings, seals, gears drives, and belt drives.

#### Day 3

##### Statistical Failure Analysis and Reliability

Job feedback and the importance of history records

Pareto effects

Elementary statistics

Collection

Analysis

Representation

Interpretation of statistical data

Reliability models

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**Maintenance cost optimization.**

**Day 4**

**Condition Based Maintenance**

**The Condition Based Approach**

- What to monitor and where?
- Condition monitoring systems
- Trending of monitored data
- Frequency of measurement
- Parameter symptom limits
- Remaining life prediction.

**Machinery Condition Monitoring**

- General purpose condition monitoring
- Thermal monitoring
- Lubricant monitoring
- The essentials of vibration monitoring
- What is vibration?
- How to measure vibration?
- Where to measure vibration?
- How to represent vibration?

**Day 5**

**Vibration Analysis**

- Overall and spectral representation
- The big five machine faults
- Detecting faults using vibration
- Diagnosing faults using vibration.

**Maintenance Records.**

**NOTE:**

**Pre & Post Tests will be conducted**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**

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