

Training Title

**Maintenance Technology - Inspection Analysis & Monitoring**

5 days

Training Venue and Dates

Maintenance Technology - Inspection Analysis & Monitoring	5	02-06 May	\$3,300	Dubai
Modern Maintenance Technologies	5	07-11 November	\$3,300	Dubai

In any of 5 star hotel. Exact venue will be informed later.

Training Fees

- 3300 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

Language: English

**TRAINING OVERVIEW**

**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 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**

The seminar will be conducted along workshop principles with formal lectures, case studies and interactive practical exercises. There will be many opportunities for discussion and sharing experiences. Lectures will cover all necessary information to satisfy the course objectives.

## **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  
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.

*Case Studies, Pre & Post Tests, Group Discussions, Last day review will be carried out.*

## **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.**
- 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.**

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