

# MODERN MAINTENANCE TECHNOLOGIES



**MRE121**  
**Maintenance &**  
**Reliability**  
**Engineering**

**COURSE TITLE****MODERN MAINTENANCE TECHNOLOGIES****COURSE DATE/VENUE**

31 May - 04 June, 2021

London, UK

**COURSE REFERENCE**

MRE121

**COURSE DURATION**

05 Days

**DISCIPLINE**

Maintenance & Reliability Engineering

**COURSE 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.

### **COURSE OBJECTIVE**

#### **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

### **COURSE AUDIENCE**

- All professionals involved in Maintenance, Engineering and Production

- Anyone who wishes to update themselves on Modern Maintenance Technologies, judge the suitability of these technologies for their needs, and learn how to implement them for the benefit of their organizations

## **COURSE CONTENT**

### **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.

### **COURSE CERTIFICATE**

**TRAINIT ACADEMY** will award an internationally recognized certificate(s) for each delegate on completion of training.

### **COURSE FEES**

\$6,150 per Delegate. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

### **COURSE METHODOLOGY**

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions