

**Training Course**

**PREVENTIVE & PREDICTIVE MAINTENANCE OF ROTATING EQUIPMENT**

**Training Duration**

**5 Days**

**Training Venue and Dates**

REF ME058	Preventive & Predictive Maintenance of Rotating Equipment	5	10 – 14 June, 2019	\$ 6,250	Larnaca, Cyprus
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In any of the 5 star hotel. Exact venue will be informed once confirmed.

**Training Fees**

- 6,250 US\$ per participant for Public Training including Course Materials/Handouts, Tea/Coffee, Refreshments & International Buffet Lunch

**Training Certificate**

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

**TRAINING INTRODUCTION**

This is a five-day course on Rotary Machinery Preventive and Predictive Maintenance. Different maintenance strategies will be discussed; elements of each maintenance strategy, their advantages and disadvantages will be explored. The selection of the appropriate strategy that fit the mode of failure and results in the minimum time between repair and that leads to least down time and maintenance cost is one of the maintenance engineer duty that must be mastered. Tools and measurements involved in each maintenance strategy must also be recognized and deeply understood. To apply the above techniques effectively on the Rotary Machinery, one should be aware of their failure modes, and methods of troubleshooting. The above will applied on different type of Rotary Machinery like pumps, compressors, and Turbines.

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**WHO SHOULD ATTEND:**

Engineers, technicians and managers responsible for selection, installation, machinery failure analysis, troubleshooting and maintenance of different rotary machines like pumps, compressors, fans, blowers, steam turbines, gas turbines will benefit from this course.

**COURSE CONTENTS:**

The following topics will be covered in the course over five working days

*DMCT/OL/9/18(Rev3Dt:23/9/18)*

**Ch 1 Maintenance Strategies**

**Maintenance Strategies**

**Corrective Maintenance**

**Breakdown Maintenance**

**Preventive Maintenance**

**Predictive Maintenance**

**Corrective Maintenance**

**Effective Preventive Maintenance**

**Planning & Scheduling**

**Mode of Failures**

**Coordination with Production**

**Opportunity Preventive Maintenance Activities**

**Predictive Maintenance Techniques**

**Vibration monitoring**

**Thermography**

**Tribology**

**Visual inspections**

**Ultrasonics**

**Process Parameters**

**Ch 2 Causes of Machinery Failure**

**Improper Specifications**

**Improper Sizing**

**Material Deterioration**

**Overstressing**

**Material Corrosion**

**Overheating**

**Fatigue Failure**

**Brittlement Failure**

**Misalignment**

**Cold versus Hot Alignment**

**Alignment Tolerances**

**Imbalance**

**Causes of Imbalance**

**Level of Balancing**

**Vibration due to Imbalance**

**Off-design Operation**

**Range of Acceptable Operation**

**Limits of Operation**

**Controlling Systems**

**Loop Oil Systems**

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DMCT/OL/9/18(Rev3Dt:23/9/18)

Bearings  
Seals  
Control Systems  
Installation Problems  
Piping Stresses

**Ch 3 Root Cause and Troubleshooting**

Failure Consequences  
Failure Modes  
Age-related Failure  
Failure which are not age-related  
    The Failure Process  
The Six Failure Patterns  
Technical History Data  
Failure Finding Task

**Ch 4 Failure Prevention**

Proper Specifications  
Codes and Standards  
Proper Operation  
Protective and Safety Devices  
Proper Training  
    Monitoring Systems  
Maintenance Planning

**Ch 5 Applications and Case Studies**

Pumps  
Fans and Blowers  
Compressors  
Steam Turbines  
Gas Turbines

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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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