

Training Title

MACHINERY FAILURE ANALYSIS, PREVENTION & TROUBLESHOOTING

Training Duration

5 days

Training Date

REF ME052	Machinery Failure Analysis, Prevention & Troubleshooting	5	14-18 Oct	\$4,250	Dubai, UAE
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In any of the 5 star hotels. The exact venue will be informed once finalized.

Training Fees

- 4,250 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

COURSE DESCRIPTION

Machines deteriorate as they get older so we can expect a certain amount of performance falloff and general deterioration of the machine. If we understand the failure mechanisms that are in place we can identify which parameters best indicate the deterioration of the machine. Failure analysis, Troubleshooting and Predictive & Planned Maintenance techniques, including vibration analysis, are discussed in the course with a view to optimising the maintenance engineering effort while maximising production.

COURSE OBJECTIVE

At the end of this seminar participants will have:

- An understanding of Machine Failure Analysis and Troubleshooting techniques
- An understanding of a range of Planned & Predictive Maintenance Technologies
- Knowledge of the potential contribution of each these technologies to maintenance efficiency
- Guidelines indicating how these technologies can interact with and support each other
- Hints and Tips for practical application of these technologies so as to achieve the best results
- 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

The knowledge gained in this seminar will:

- Allow the delegate to carry out analysis of machine failures
- Enable the delegate to develop a proactive maintenance regime within the organisation.
- Give the delegate confidence to carry out failure analyses thereby avoiding repetitive failures.
- Allow tighter control of maintenance budgets by the avoidance of unplanned equipment failures in service.

WHO SHOULD ATTEND?

This seminar is directed towards Supervisors, Team Leaders and Managers in Maintenance, Engineering and Production. The seminar will also benefit anyone who wishes to update themselves on Predictive Maintenance Technologies and Failure Analysis techniques, as well as those who have to judge the suitability of these technologies for their needs, and learn how to implement them for the benefit of their organisations.

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. 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.

Very useful Course Materials will be given.

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

COURSE OUTLINE

Day 1

UNDERSTANDING FAILURES.

Machine Failure Analysis

Wear and tribology

Fatigue mechanisms

Plain, tilt-pad and anti-friction bearing and seal failures

Day 2

AVOIDING FAILURES.

Analysis and identification of failures

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FMEA and FMECA to identify failure modes and criticality analysis
Trouble shooting techniques
Statistical analysis of failures
Reliability, availability and maintainability

Day 3

UNDERSTANDING PLANNED MAINTENANCE.

Planned Maintenance Concepts

Introduction

Maintenance Strategies

Planned Maintenance – background and history

Planned Maintenance Technologies – an overview

CMMS – an overview

Potential Failure Analysis

Deciding which technologies to apply to avoid failures

Day 4

USING PREDICTIVE MAINTENANCE.

Vibration Analysis

Introduction to Vibration Analysis

Frequency Analysis and the Fast Fourier Transform

Vibration Transducers

Basic Failure Mechanisms with examples

Vibration Standards and Alarm Levels

Vibration Diagnostics

Amplitude Demodulation – aka Enveloping, SSE, HFD, Peak-Vue

Vibration on Rolling Element Bearings

Resonance – identification & cure

Other Predictive Maintenance Techniques

Infrared Thermography

Thermographic applications

Passive Ultrasonics - contact and non-contact

Ultrasonic Applications

Tribology – oil analysis

Day 5

CONTROL MECHANISMS.

Managing Planned Maintenance

Performance and Efficiency Monitoring

Managing the Planned Maintenance effort

Cost Analysis

**Reporting Techniques
Integrating Predictive Maintenance into the Maintenance Plan**

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



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