MERCURY

Machinery Failure, Vibration & Predictive Maintenance

09 - 13 Mar 2025
Dubai (UAE)

Machinery Failure, Vibration & Predictive Maintenance

Ref.: 6083_283194 **Date:** 09 - 13 Mar 2025 **Location:** Dubai (UAE) **Fees:** 4500 **Euro**

Introduction

Machines deteriorate as they age, leading to expected performance falloff and gradual deterioration. Understanding the failure mechanisms is crucial to identifying the parameters that best indicate machine deterioration.

This vibration analysis and predictive maintenance course covers failure analysis and predictive maintenance techniques, focusing on vibration analysis as a keystone of industrial predictive maintenance. The vibration analysis and predictive maintenance course also examines other methods, such as infrared thermography, passive ultrasonics, tribology, and performance monitoring.

This comprehensive vibration analysis and predictive maintenance course delves into the intricacies of machinery failure analysis and provides detailed insights into various predictive maintenance techniques. The training empowers professionals with the knowledge and skills to effectively implement and manage advanced maintenance programs.

Understanding Predictive Maintenance Training Course Overview

Predictive maintenance represents a pivotal strategy in modern industrial maintenance, employing various specialized techniques to anticipate and prevent machine failures. This vibration analysis and predictive maintenance course offers a rich curriculum encompassing the essential aspects of predictive maintenance, tailored to enhance maintenance engineering practices and bolster production efficiency.

In this predictive maintenance certification training program, the robust use of vibration analysis and the nuanced understanding of predictive maintenance technology work together to foster a proactive approach to machinery maintenance. Participants in the vibration analysis and predictive maintenance course will gain theoretical knowledge and practical skills in machinery vibration analysis and predictive maintenance, enabling them to certify their expertise in this rapidly evolving field.

Targeted Groups

- Supervisors.
- Team Leaders.
- Professionals in Maintenance, Engineering, and Production.

Course Objectives

At the end of this vibration analysis and predictive maintenance course, participants will be able to:

- Grasp machine failure analysis techniques and understand their application in determining machinery health.
- Understand a range of predictive maintenance technologies.
- Get acquainted with a broad spectrum of predictive maintenance technologies and their implementation.
- Comprehend the potential contribution of each technology to maintenance efficiency and the synergies between them.
- Discover practical tips for effectively applying these technologies for optimal results.

Targeted Competencies

At the end of this vibration analysis and predictive maintenance course, the participants will be able to:

- Developing and implementing robust maintenance programs.
- Approaches for gleaning insights from machinery failures.
- Optimizing maintenance resources and personnel.
- Executing best practice maintenance techniques and methodologies.

Course Content

Unit 1: Understanding Failures

- Machine failure analysis.
- Wear and tribology.
- Fatigue mechanisms.
- Failures in different types of bearings and seals.

Unit 2: Reliability Fundamentals and Methods for Avoiding Failures

- The foundations of machinery reliability.
- Reliability determination and assessment methods.
- Statistical analysis of machinery failures.

Unit 3: Understanding Predictive Maintenance

- Predictive maintenance concepts.
- Introduction.
- Maintenance strategies.
- Predictive maintenance - background and history.
- Overview of predictive maintenance technologies.
- Potential failure analysis - deciding which technologies to apply.
- Vibration analysis.
- Introduction to vibration analysis.
- Frequency analysis and the fast Fourier transform.
- Vibration transducers.
- Basic failure mechanisms with examples.

Unit 4: Using Predictive Maintenance

- Vibration standards and alarm levels.
- Vibration diagnostics.
- Amplitude demodulation, enveloping, SSE, HFD, and Peak-Vue.
- Vibration on rolling element bearings.
- Resonance to identification and cure.
- Other predictive maintenance techniques.
- Infrared thermography.
- Thermographic applications.
- Passive ultrasonics, contact, and non-contact.
- Ultrasonic applications.
- Tribology and oil analysis.

Unit 5: Control Mechanisms

- Managing predictive maintenance.
- Performance and efficiency monitoring.
- Managing the predictive maintenance effort.
- Cost analysis.
- Reporting techniques.
- Integrating predictive maintenance into the maintenance plan.

Registration form on the :
Machinery Failure, Vibration & Predictive Maintenance

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