XCELERATE TRAINING INSTITUTE

your learning & development partner

MECHANICAL ENGINEERING

Machinery Failure Analysis and Troubleshooting Training Course

DURATION	LANGUAGE	FORMAT
5 days	English	Classroom / Online

Upcoming dates

Dates	Venue	Format	Fee
15 – 19 Mar 2027	Live online	Online (live)	€1,200
26 – 30 Apr 2027	Cairo	Classroom	€4,800
27 Sep – 1 Oct 2027	Live online	Online (live)	€1,200

Register or ask a question

Online: staging.x8ti.com/course/machinery-failure-analysis-and-troubleshooti…

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Machinery Failure Analysis and Troubleshooting Training Course

Introduction

Introduction

How do you do a Machinery failure analysis? This program aims to convey the latest thinking and best practices used in all Industry Equipment and Components, Operation and Troubleshooting conditions, Monitoring, and Analysis. Also, it provides a detailed advanced treatment of the detection, location, and diagnosis of faults in Mechanical Equipment. Case studies, examples are used throughout the program to focus on the key points and to underline the relevance and applicability of the topics being addressed.

What are the causes of Machinery failure? This course will provide a firm foundation for technologists moving into a machine monitoring and diagnostic role. Participants will study the technique, tools and procedure of root cause failure analysis and failure mode effective analysis as a proactive strategy for achieving precise operation and improving machinery performance.

This Xcelerate Training Institute course offers insight into how to analyze a system's failure modes and define how to prevent or find those failures early.

Learning Objectives

- Strengthen and update understanding of the Terminology used in measuring and analysis
- Offer methods to improve equipment through the prediction and the avoidance of Equipment Failure
- Understanding and considering the critical necessities and priorities associated in maintaining machinery
- Key procedure for the implementation and application of risk-based failure analysis

Training Methodology

- Lectures
- Case Studies & Practical Exercises
- Videos and General Discussions

Benefits for Your Organization

- Know how to reduce the overall life cycle cost of owning a piece of equipment
- Maximize and increase component life by avoiding the cause of failure
- Manage critical equipment and functional failure

Benefits for You

- Become familiar with condition-based maintenance rather than corrective maintenance
- Implement and apply real improvements in machinery reliability and plant performance
- Work on case studies based on both technical and non-technical situations

Target Audience

This course is designed for Design Engineers, Operation Engineers, Supervisors, Maintenance Engineers and Planning Engineers working in refineries, petrochemical plants and power stations.

Course Outline

Concept of Failure

- Re – Test
- Introduction to Failure Analysis and Troubleshooting Systems
- Causes of Machinery Failure
- Machinery Design Properties
- Equipment Failure
- Types of Failure Causes
- Effect of Failure
- Failure Cascading
- Failure Modes
- Chronic vs. Sporadic Failures
- Failure Reporting
- Failure Reduction Programs

Root Cause Failure Analysis Process

- What is RCFA?
- Why it is done?
- Types of Root Causes
- SEVEN Generic Steps in an RCFA
- Challenges in Setting up RCFA
- Sustaining an RCFA Process
- Application on RCFA (Exercises)

Failure Analysis & Investigation Tools

- Brainstorming
- Flow Charts
- Histograms
- Fishbone Diagrams
- Pareto Charts
- Fault Tree Analysis
- Failure Mode and Effect Analysis (FMEA)
- Applications (Exercises)

Failure Mode and Effect Analysis (FMEA)

- Failure Analysis Methods
- Common Failure Analysis Techniques
- Implementing FMEA

- FMEA Procedure
- Application of FMEA (Exercises)

Machinery Troubleshooting

- Condition Monitoring
- Machine Failure Modes
- Equipment Performance
- Methods of Detection
- Applications (Machine Failure)

Structured Problem-Solving Techniques

- Win – Win Problem Solving
- Development of Problem-Solving Skills
- Alternative Solution Training
- Formulate Alternative Strategies
- Guidelines for Decision Making
- Priority - Setting

Machine Reliability

- Reliability, availability, maintainability
- Risk Assessment and Management
- Life Cycle Management
- Reliability & Maintainability
- Techniques & Analysis of Reliability
- Human and System Reliability
- Human Performance Approach
- Reliability Centered Maintenance
- Centrifugal Pump-Reliability Improvement
- Machinery Reliability Audits and Reviews

Case Studies

- Failure causes in Journal and Tilting Pad Thrust Bearings
- Mechanical Seal Failure Modes
- Lubricant of Pumps and Motor Problems
- Causes of Shaft Failure
- Causes of Coupling Failure
- Causes of Gear Failure
- Post Test

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Registration Form

Machinery Failure Analysis and Troubleshooting Training Course

Preferred dates: ..... Venue or online: .....

Duration: 5 days Language: .....

Please complete and email this form to us, or register online. We confirm your place and send the invoice within one working day.

Delegate information

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Official email: ..... Personal email: .....

Company information

Company name: .....

Address: .....

City / country: ..... VAT / tax number: .....

Person responsible for training & development

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Email: .....

Payment

☐ Please invoice me ☐ Please invoice my company

Signature: ..... Date: .....

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Email this form
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Register online
Open the course page