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Rotating Equipment Optimisation with Continuous Reliability Improvement (CRI)

7 – 11 June 2027
Düsseldorf (Germany)

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PARTNER



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Ref: 3271_291383 **Date:** 7 – 11 June 2027 **Location:** Düsseldorf (Germany) **Fees:** 5900 GBP

Introduction

Rotating equipment is a critical asset in various industrial applications, particularly in the oil and gas industry. Benchmarking studies from refineries around the world show that rotating equipment can account for more than 20% of all maintenance and inspection costs. Moreover, these systems are often positioned at key nodes within the production process, making them essential to continuous operation. Failure in rotating equipment can lead to significant downtime, which results in high costs and production losses.

This training program is designed to provide delegates with a comprehensive understanding of how to implement rotating equipment reliability management through a combination of predictive and preventive maintenance strategies. The goal is to equip participants with the tools and knowledge needed to maximize the reliability, efficiency, and performance of rotating equipment by applying continuous reliability improvement CRI processes. By utilizing proper failure monitoring techniques, this course will help you optimize equipment performance and reduce the impact of downtime, ensuring cost-effective maintenance solutions for critical machinery.

Course Objectives

- Apply proven methodologies and templates for rotating equipment reliability.
- Focus on key areas of reliability to enhance system performance and minimize failure risks.
- Understand the nature of failure modes and their impact on the performance of rotating equipment.
- Make strategic maintenance choices for critical rotating equipment to maximize uptime.
- Minimize plant downtime and optimize production by implementing effective maintenance strategies.
- Unlock the full potential of your team with targeted rotating equipment training and expertise.



Course Outlines

Day 1: Understanding the Link Between Reliability and Competitive Advantage

- Definition of Reliability: Introduction to rotating equipment reliability and its importance in industrial settings.
- Probability of Failure: How to quantify the likelihood of failure and use this data to enhance maintenance strategies.
- Reliability Metrics: Key performance indicators used to measure the health and efficiency of rotating equipment.
- Strategic Importance of Reliability: The role of reliability management in improving competitive advantage.
- Assessing Current Performance: Tools and techniques for evaluating the current state of rotating equipment performance.
- Making the Right Strategic Choices: How to prioritize rotating equipment services based on reliability and operational needs.

Day 2: Using Reliability Modeling to Establish Inherent Reliability

- Basic Modeling Building Blocks: Introduction to the fundamental components of reliability models.
- Deterministic and Probabilistic Models: Exploring the differences between deterministic and probabilistic approaches to reliability.
- Markov Chains: A mathematical method for modeling the transition of equipment states and predicting failures.
- Monte Carlo Models: Using Monte Carlo simulations to predict reliability and performance outcomes.
- Case Study Examples: Real-world applications of reliability modeling in rotating equipment repair.

Day 3: Understanding the Nature of Failures in Order to Make the Best Response

- Origins of Failure: Identifying the root causes of failure in rotating equipment.
- Failure Types and Six Common Patterns: Recognizing common patterns in rotating equipment failures to improve response strategies.
- Weibull Analysis: Using Weibull analysis to predict failure times and assess equipment health.
- Maintenance Tasks: Identifying appropriate maintenance tasks based on failure analysis.



Day 4: Optimising Failure Management to Ensure Cost-Effective Maintenance

- Risk Assessment and Criticality: Assessing the risks associated with rotating equipment failures and their impact on operations.
- Equipment Functions and Functional Failures: Understanding how the function of rotating equipment affects maintenance decisions.
- Failure Modes and Effects Analysis FMEA: Using FMEA to identify potential failure modes and their consequences on production.
- Maintenance Task Selection: How to choose the most cost-effective maintenance tasks to minimize downtime.
- Practical Maintenance Plan: Developing a hands-on, practical plan for managing the reliability of rotating equipment.

Day 5: Setting Up a Continuous Reliability Improvement Process to Enhance Performance

- Assessing Improvement Potential vs. Costs: How to weigh the potential benefits of reliability improvements against the associated costs.
- Obtaining Senior Management Support: Strategies for getting buy-in from senior management for reliability initiatives.
- Establishing the Project Framework: Steps for setting up a continuous reliability improvement process.
- Technical and Human Considerations: Balancing technical requirements with human factors to ensure the success of the program.
- Likely Results: Understanding the expected outcomes from implementing a rotating equipment reliability improvement program.

Why Attend This Course: The Wins & Losses!

- Unlock the full potential of your rotating equipment: This course will teach you how to optimize the performance and reliability of your critical equipment, ensuring minimal downtime and enhanced operational efficiency.
- Reduce maintenance costs: By applying the latest rotating equipment solutions and best practices for predictive and preventive maintenance, you can reduce costs associated with equipment repair and inspections.
- Improve decision-making and strategic choices: Gain the tools and knowledge to make the right maintenance choices, ensuring that critical equipment is optimized for performance.
- Enhance operational reliability: Learn how to improve the reliability of rotating equipment, leading to a more efficient, cost-effective, and competitive operation.
- Boost team expertise: This course provides rotating equipment training that will develop your team's skills, enabling them to manage and maintain equipment with greater efficiency.



Conclusion

Attending this course will provide you with invaluable knowledge on rotating equipment repair, reliability management, and the tools to implement continuous reliability improvement CRI processes. By mastering the principles of rotating equipment solutions, you will be able to reduce downtime, enhance performance, and make cost-effective maintenance decisions that will drive the success of your organization. Whether you're a rotating equipment engineer, technician, or specialist, this program will provide the expertise needed to optimize the reliability and performance of critical equipment in your industry.

