Maintenance and Reliability Management

Energy Milestones Corporation

Advancing Professionals to the next level

Energy Milestones is proud to be accredited, partner and associated with the following association bodies:

info@energymilestones.com

energymilestones.com

Maintenance and Reliability Management

Overview

This course equips participants with essential strategies to improve maintenance and reliability performance while reducing asset ownership costs. It covers foundational maintenance practices and introduces key reliability methods like FMECA, TPM, RCM, and RCFA. Participants will learn to apply these strategies through practical maintenance tactics, including predictive, preventive, detective, and corrective approaches.

Course Objectives

- **Compare their current maintenance strategies to industry best practice**
- **Understand the benefits and costs of alternative maintenance strategies**
- **Define maintenance strategies for a specific system using a decision support process and tools**
- **Analyse failures and determine the root causes using the tools and templates provided**
- **Implement reliability improvement methodologies correctly**
- **Prepare maintenance schedules and procedures for implementation**

Course Content

1. Introduction to Maintenance and Reliability Management

- The cost and risk of equipment failure
- Pillars of excellence in maintenance
- Best practice reliability and maintenance processes
- Overview of FMECA, TPM, RCM, RBI, and RCFA

2. Establish a Framework for Reliability

- Build a competent team to drive reliability in each area
- Asset identification, classification, and criticality grading
- Define asset performance and efficiency standards
- Anticipate the physical causes of failure and degradation
- Anticipate the human causes
- Analyse the effects and quantify the risks
- Practical application of failure and risk analysis

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Course Content

3. Failure Management Strategy Development

- Risk-based approaches to failure management
- Select proactive maintenance tactics based on costs and risks
- Preventive maintenance tasks and intervals
- Predictive maintenance tasks and intervals
- Failure detection and function testing tasks and intervals
- Human error reduction through equipment, procedural and skill upgrades
- Repair-after-failure strategies
- Practical application and open discussion sessions of the case study

4. Failure Management Strategy Implementation

- Aggressive defect reporting to feed the backlog
- Plan for quality, time and safety
- Budget for spare parts and make stocking decisions
- Schedule maintenance to minimise operational downtime
- Use appropriate metrics to drive defect elimination
- Practical application and open discussion sessions

5. Root Cause of Failure Analysis

- Failure reporting analysis, and corrective action system requirements
- Use failure data and Pareto analysis to identify and stratify improvement opportunities
- Types of evidence, preservation, and use
- Organise the RCFA and apply the process
- Practical RCFA case study using an MS Excel-based tool
- Review of failure forensic techniques

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Targeted Audience

- Reliability Engineers
- Maintenance Planners
- Maintenance Supervisors
- Maintenance Engineers
- Operations and Process Team Leaders

Course Methodology

Facilitated by an experienced professional trainer, this training course will be conducted as a highly interactive workshop session. A variety of training methodologies and facilitation techniques will be employed before and during the course, as applicable. These methods are aimed at enhancing individual and group interaction while maximising learning. Some of these methods are:

- Online Pre-post Test
- Colourful Visual Aids
- Gamification
- Self-Assessment Instruments
- Simulations
- Case Studies
- Videos
- Group Exercises & Discussions
- Role plays
- Indoor & Outdoor games