

RISK RELIABILITY MANAGEMENT

MNE006

COURSE DESCRIPTION

Recently, risk management has become the central function of a utility professional and organizations are being held to a higher standard by their stockholders: Shareholders to improve return on investment, customers to produce better quality, and by society to improve safety and environmental integrity. Traditional maintenance tactics are unlikely to meet the demands that are placed on the modern organization and for this reason progressive organization are changing to a risk-based approach.

This course will answer many related questions such as: How the objective of maintenance over the last twenty years has steadily shifted from a 'prevention' approach to 'risk-based' approach? Why the evolution to larger and more complex systems capable of higher capacities leads to greater losses and requires a change in maintenance tactics, How lean processes with less in-process storage and lower product inventories create a bigger demand for reliability, How organizations are being held to a higher standard by society with regard to safety and environmental responsibility, and how organizations can overcome the above challenges by applying what they will learn in this course.

COURSE GOAL

To enhance the participants' knowledge, skills and abilities necessary to commission, appraise, review and apply risk-based approach so that organizations can improve the reliability of the assets, reduce maintenance costs and achieve higher levels of safety and environmental integrity over the life cycle of their systems.

COURSE OBJECTIVES

By the end of this course, participant will be able to:

- Choose systems for reliability and risk improvement.
- Identify functions and appropriate performance standards.
- Anticipate the failed states, failure modes and damage mechanisms of a system.
- Apply maintenance tactics to reduce risk and improve reliability.
- Apply a team-based approach to implement risk and reliability improvement.

WHO SHOULD ATTEND

- Reliability Engineers
- Maintenance Engineers
- Maintenance Supervisors
- Maintenance Planners

- Reliability Inspectors
- Team Leaders/Managers Who are Responsible for Physical Asset Reliability And Integrity

COURSE DURATION

5 Working Days

COURSE OUTLINES

1. Operational Context and Functional Analysis

- Decomposition of plant/equipment
- Criticality grading
- Identification of primary, secondary functions
- Determination of performance standards and quantify
- Exercise: functional analysis

2. Failure Analysis

- Modes of failure
- The concept of 'reasonably likely'
- Mechanisms of deterioration and damage
- Mechanism of physical damage
- Exercise: Failure Analysis

3. Failure Effects, Consequences, Probability and Risk

- Operational risks and financial risks
- Safety, health and environmental consequences
- Hidden failure consequences
- Exercise: Risk Analysis
- The six failure probability density curves

4. Risk-based Maintenance Tactics

- Diagram of tactic decision
- Preventive maintenance:
 - Types of tactics
 - Selection of appropriate intervals
- Condition-based maintenance:
 - Types of tactics
 - Determination of the PF interval

- Function testing
 - Failure finding
 - Determination of the interval
- Exercise: Select and define appropriate maintenance tactics

5. Implementation of Risk-based Reliability Management

- The role of the facilitator
- Selection and setting up the review projects
- Auditing the decision making
- Implementation of the results

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