EXCELLENCE RELIABILITY, AVAILABILITY & MAINTAINABILITY MNE010

COURSE DESCRIPTION

This course is designed to assist maintenance management personnel responsible for delivering maximum maintenance, reliability and availability of equipment at the lowermost potential cost. The course will present reliability methods designed to improve the effectiveness of maintenance management activities, to ensure that physical assets perform their required functions, operate reliably, and support corporate goals.

COURSE GOAL

The course will focus on the modern methods and techniques on the most critical aspects of Maintenance Management & Reliability Analysis such as Failure Patterns, Pareto Analysis, Root Cause Analysis (RCA), Failure Mode and Effect Analysis (FMEA), Reliability Cantered Maintenance (RCM), Criticality Assessments, Life Cycle Cost Analysis, Life Data Analysis, Recurrent Event Data Analysis.

The delegate will also be introduced to Reliability in Design of new production units and also the effect human reliability has on plant availability.

COURSE OBJECTIVES

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

- Achieve excellence in mechanical integrity and reliability management and establish the environment for improvement.
- Recognize the aspects of maintenance today through the various types of maintenance including maintenance strategy development and productive maintenance.
- Determine the process of developing maintenance objectives in accordance to the business plan, R&M policy and maintenance strategy, discuss the significance of equipment plans in maintenance planning and identify several equipment plans development, approaches and plan options.
- Recognize the purpose of work execution and job completion and characterize its advantages and disadvantages, implement the methods of maintenance quality assurance and continuous improvement and employ the method of Root Cause Failure Analysis (RCFA).
- Apply the various stewardship and performance metrics including performance work management, KPIs, maintenance effectiveness metrics and work force utilization metrics.
- Distinguish the factors of human reliability through classification of human error and human reliability analysis, familiarize the different reliability tools using life cycle cost analysis and life data analysis and discuss the key elements of reliability engineering and how to manage assets in projects.

WHO SHOULD ATTEND

This course covers systematic techniques in maintenance and reliability management to assist maintenance management team in delivering maximum reliability and availability of equipment at the lowest possible cost. The course will present techniques designed to improve the effectiveness of maintenance management activities, to ensure that physical assets perform their required functions, operate reliably, and support corporate goals. It is essential for all maintenance and reliability management.

COURSE DURATION

5 Working Days

COURSE OUTLINES

1. Maintenance Excellence
    - Framework for Maintenance Excellence, Overall Philosophy,
    - Maintenance Principles , Work Environment , Equipment ,
    - Information Systems , Elements for Effective Maintenance ,
    - Establishing the Environment for Improvement
2. Modern Maintenance
    - Types of Maintenance ,
    - Maintenance Strategy Development ,
    - Productive Maintenance
3. Equipment Failure Patterns
    - Equipment Failure Types,
    - Reasons for Equipment Failure ,
    - Failure Analysis & Root Cause
4. Maintenance Management
    - Managing Maintenance , Basic Principles ,
    - Maintenance Business Model, Business Elements ,
    - Maintenance Organization Maintenance Objective Setting
5. Equipment Plans
    - Equipment Plans Development ,
    - Plan Options , Approaches

6. Advanced Maintenance Management

- Stewardship and Performance Metrics & KPIs ,
- Performance Indicator Characteristics , Business Results Indicators ,
- Process Unit Run-Length Goals , Work Management KPIs ,
- Maintenance Effectiveness Metrics , Analytic Hierarchy Process (AHP)

7. Quality Assurance & Continuous Improvement

- Objectives and Implementation ,
- Data to be Screened ,
- Bad Actors and RCFA

8. Human Reliability

- Classification of Human Error ,
- Human Reliability Analysis

9. Reliability Tools & Approaches

- Pareto Analysis, Root Cause Analysis (RCA).
- Failure Mode and Effect Analysis (FMEA).
- Reliability Cantered Maintenance (RCM), Criticality Assessments, Life Cycle Cost Analysis.
- Life Data Analysis.
- Recurrent Event Data Analysis.

10. The Reliability Engineer & Asset Management of Projects

- Key Elements of Reliability , Establish Reliability During Design.
- Why Build Reliability into a Project.
- Work Process for implementing.
- Overall Reliability Goals.