ENERGY Milestones
معالم الطاقة

Optimizing Equipment Maintenance & Replacement Decisions

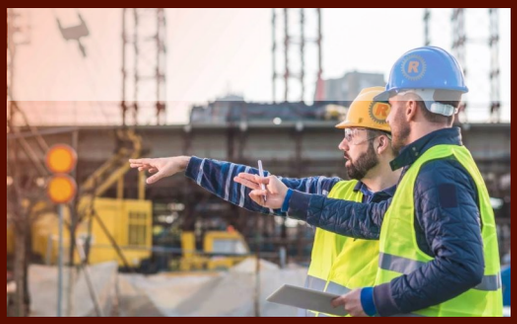
Energy Milestones Training Centre

Advancing Professionals to the next level

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

ISO 9001:2015 | ENGINEERING RCEP REGISTERED CONTINUING EDUCATION PROGRAM | NERC NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION | ACCREDITED IACET PROVIDER | BOARD OF INTERNATIONAL TRAINERS BITA AMERICA | INSTITUTE OF SUPPLY CHAIN MANAGEMENT MENA

Optimizing Equipment Maintenance & Replacement Decisions



Targeted Audience:

- This training course is Suitable to a wide rangeof professionals but will greatly benefit:
- Technical professionals responsible for maintenance and repair of equipment
- Operation, technical production & inspection professionals
- Technical professionals dealing with risk assessment and integrity analysis

Overview:

This training course is intended to introduce the participant to the process of making decisions regarding equipment maintenance optimisation including equipment replacement. Various optimisation techniques will be presented and the optimisation criteria explained. This course will also include several workshops with case studies and real-world problems to be solved.

Course Objectives:

At the end of this course the participants will be able to:

- ◊ Identify equipment failures, and the impact on plant reliability
- ◊ Understand the cost-effectiveness of Preventive/Predictive Maintenance program
- ◊ Apply techniques of optimisation of various maintenance activities
- ◊ Define criteria for work-crew size, spare parts and equipment replacement
- ◊ Make the important decision on the basis of the cost and benefit analysis
- ◊ Incorporate safety objectives to the equipment repair or replacement optimisation

Course Content:

1. Physical Asset Management & Failure Analysis

- ◊ Physical Asset Management
- ◊ Maintenance Management: Preventive / Predictive Approach
- ◊ Nature and Modes of Equipment Failure
- ◊ Failure Modes & Effect Analysis (FMEA)
- ◊ Analysis of Component Failure data using the Weibull Distribution
- ◊ Censored Data, the 3-Parameter Weibull, and the Kolmogorov-Smirnov Test

2. Preventive Maintenance & Spare Parts Replacements

- ◊ Reliability and Availability Concept: MTBF & MTTR
- ◊ Reliability Improvement through Reduction of Downtime
- ◊ Maintenance Performance Quantification
- ◊ Preventive Maintenance & Spare Part Handling
- ◊ Spare Parts Provisioning: Prediction Models and Techniques
- ◊ Management of Change: In-Kind Spare Parts

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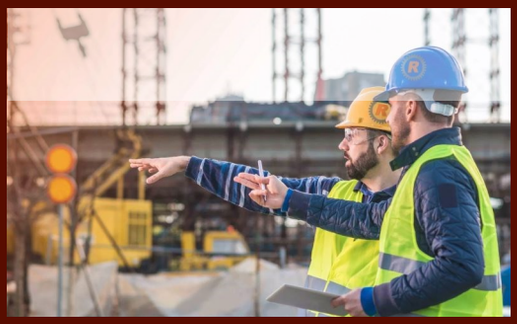

Course Methodology:

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 used before and during the course whenever applicable. These methods are aimed at enhancing individual and group interaction while maximizing learning. Some of these methods are:

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

Course Content (cont'd) :

3. Equipment Inspection & Fitness for Service

- ◊ Condition Monitoring & Inspection
- ◊ Risk Based Inspection (RBI)
- ◊ Risk Matrix: Management and Mitigation Measures
- ◊ Reliability Improvement through Inspection
- ◊ Inspection Scope & Frequency
- ◊ Fitness for Service Analysis (FFS)

4. Economics of Maintenance, Repair & Replacement

- ◊ Management of Maintenance Resources
- ◊ Effective Use of CMMS
- ◊ Maintenance Organization Analysis : Crew size
- ◊ Equipment Repair or Replacement Decision
- ◊ Economic Aspect of Maintenance Outsourcing: Subcontract
- ◊ Economic Aspect of Equipment Replacement

5. Total Productive Maintenance & Safety

- ◊ Capital Investment in Equipment and Maintenance: ROI
- ◊ Total Productive Maintenance
- ◊ Safety in Maintenance Work
- ◊ KPI and OEE: Leading and Lagging Indicators