



"World Class and Emerging Techniques in Maintenance Practices to ensure Safe, Reliable, Compliant and Competitive Performance"

(21-23 December 2017 at Nagpur)

About the course and its benefits:

In today's 'VUCA' world the provision of safe, reliable, compliant and sustainable plant assets or services fundamentally rely on best practices/ process controls and information management which has become a challenge for a business to survive in current competitive environments. To deal with these challenges, knowledge and skill development on "Best Engineering and proactive Maintenance Practices" has become important and essential for practicing professional, engineers, and managers and General management team lead of all categories of industry or establishments to improve bottom line profitability and gain a competitive advantage in their respective market segments. Increasing reliability and reducing risk lowers the total cost of equipment ownership, lowers production costs and increases plant production capacity. Exactly what today's companies need?

The reliability and proactive maintenance engineering of a Plant assets determines its performance. Process safety, environmental impact and cost performance all depend on Reliability. It is, therefore, a pivotal driver, which we can use to make significant business gains in today's VUCA world.

This practical training course / workshop will show you that it is easy to understand and explains how to use data from operating and maintenance records and get the following end goals of Maintenance and Reliability in organizations.

- Occupancy : 100% occupancy or zero slow down
- Availability : 100% at optimum LCC (Life cycle cost)
- Reliability : Improving MTBF of plant equipment with incident free high level of safety and integrity

Learning Outcomes and course objectives:

The links between maintenance, reliability, availability and the effect of Reliability on Process & Environmental Safety, Production volumes and maintenance costs will become clear.

By attending this 3 days training course you will

- **understand** about Reliability, Availability and Maintainability (RAM), their definitions and applications.
- **understand** how to determine MTBF, MTTF, MTTR, and learn how to use these to determine best maintenance strategies and operating philosophies.
- **find out** how Plant availability depends on reliability and see how configuration affects the outcome.?
- **study** different failure distributions and see why these matter?
- **know about** number of tools including RCM, RBI, FMECA, IPF, FTA, ETA, so that you know what to use where.
- **about failure** analysis using RCA techniques .
- **understand** business Process to manage Reliability Improvement and a roadmap to achieve BIC (Best in class) performance.



Who can attend this workshop/training program?

Prospective participants, from various industries such as Fertilizers, cement, chemical, petrochemicals, oil & gas, refinery, power sector, Detergent manufacturing and utility / infrastructures company etc., are:

- Reliability and maintenance engineers and managers, Sr Managers and General Managers of all disciplines (Mechanical, Electrical, Instrumentation and civil)
- Rotating and Static equipments specialists.
- Maintenance planning engineer and maintenance supervisors.
- Safety Engineers and Production or chemical process engineers
- corrosion & Inspection engineers, Metallurgy professionals,
- Project engineers, Construction engineers and people involved in Commissioning of process plants.
- Senior leadership members wishing to implement and drive Best in class maintenance management system based on RCM, FMEA/ FMECA methodology to achieve business objectives.

Course Outlines:

AGENDA DAY 1

1. Welcome and Introductions
2. Objectives, Contents
3. What is and necessary of maintenance
4. History of maintenance
5. Safety, Environment Risks – Mitigation – Control
6. Challenges faced by maintenance department
7. Different types of maintenance
8. Emerging trends in maintenance
9. Emerging trends and new practices in maintenance
10. What is Reliability, Availability, Performance, Maintainability and Capability
11. Overview of Reliability & Maintenance Engineering
12. What is maintainability
13. Swiss cheese model & VUCA Analysis

AGENDA DAY 2

1. Review of Day - 1 learnings
2. Introduction to RCM, TBM, PDM, TPM, CBM, BDM, MBM
3. Applications of Reliability Engineering and Degrading mechanisms
4. Maintenance optimization and Cost reduction
5. Predictive maintenance & TPM
6. Introduction to RCD, RBI, RCM, FMECA, FTA, ETA, RCA, DIPF
7. CMMS and EAM
8. OEE, TEEP and Exercise
9. Equipment, System effectiveness



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- 10. Maintenance Strategy and Maintenance Planning
- 11. OEE exercise and Case studies

AGENDA DAY 3

- 1. Review of Day – 1 & 2 learnings
- 2. Details of tools like FMCEA, FTA, ETA, RCA, DIPF
- 3. Maintenance Strategy & Planning pre-requisite
- 4. Overview of New Emerging techniques in maintenance (CMMS, EAM, MIMOSA)
- 5. Exercise on FMEA – Case study
- 6. Exercise on FTA, ETA – Case Study
- 7. True Downtime Cost (TDC) concept
- 8. PM Analysis of TPM
- 9. Review and Summary of Learnings in Day 1, 2 & 3
- 10. Question and Answers

Registration:

Dates of the program: 21-23 Dec (Thursday- Saturday) 2017 at Nagpur.

Participation fees: Rs. 27000/- per delegate (Excluding GST@18%; Training program includes training material hard copies, Tea, Lunch & snack, excluding lodging and Boarding)

Payment: ECS/NEFT/DD in favor of "Centre for Industrial Solution and Advanced Training" Payable at Nagpur, Maharashtra, India. Account No: 0509102000003353 Bank: IDBI, Wardha- 442001, MS, India; IFSC Code: IBKL0000509; Swift Code IBKLINBB007; MICR Code 000259000.

Venue: KEC International Training Centre, Butibori, Nagpur, MH

For Registration, please do contact to,

We prefer on line Registration through our web www.cisat.co.in.

- 1. Mahendra Dhande 09168326662,
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Contact for any In-house Training Program at your plant or location.

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