



**3 Day`s Workshop on**  
**"Bearing Maintenance Technology, Vibration Analysis Technology**  
**and Precision Shaft Alignment"**

**(9-11 Sept 2019 at Nagpur)**

**Learning Objective & Outcome of Training Programme:**

- Training Programme on "Bearing Maintenance Technology"
  - To Provide Learning to Participants on understanding of Bearing Fundamentals, Types Of Bearings, Designation System etc.
  - To Provide Learning to Participants on Bearing Lubrication
  - Understanding on Various Bearing Failure Phenomenon,
  - Causes of Bearing failure &
  - Learning on Corrective action to be taken to eliminate/prevent various Bearing Failures to enhance life of Bearing
- Training Programme On "Precision Shaft Alignment"
  - To Provide Learning to participants on Definitions Alignment & Misalignment ,
  - To Provide Learning to participants Learning on Different types of Misalignment like Angular, Offset, Horizontal, Vertical & Combine etc.,
  - To provide Learning to Participants on How to Do Successful Shaft Alignment,
  - To provide Learning to Participants Various Pre Alignment Checks,
  - To Provide Practical Exposure & Hands on Laser Alignment Tool to all participants
- Training Programme on " Vibration Analysis Technology"
  - To Provide Learning on Fundamental Knowledge of Machinery vibrations
  - To Provide Learning to Participants on Vibration Standards for various equipment' s according to ISO 101816
  - To provide Learning on How to Analyse Typical Machinery Problems
  - To Provide Learning to Participants on Spectrum Analysis Technology
  - To Provide Practical Exposure and Hands on to participants on Latest Vibration Monitoring instruments



**Who Should Attend?** Practicing engineers of all levels, GETs & DETs with Electrical, Electronics, Instrumentation, Mechanical, Production background.

## **COURSE CONTENT:**

### **Day 1: Training Programme on “Bearing Maintenance”**

- Basics of Bearing
- Animation on Bearing Types
  - Antifriction Bearings
    - Radial Bearings
    - Thrust bearings
- Bearing Selection Criteria
- Video Clips /Movies on Practical Mounting & Dismounting Of Bearings
- Introduction to Various Bearing Failures, Discussion on Causes of Bearing Failure
- Discussion on Corrective Action to be taken to minimize bearing failure to enhance Bearing Life
- Bearing Lubrication Selection & application of Lubricants
- Storage of Lubricants
- Case studies
- Open house, Q&A, Discussion

### **Day 2: Training Programme on “Precision Shaft Alignment”**

- Alignment Definitions & Importance of Alignment
- Types of Misalignment & Detection of Misalignment with Condition Monitoring Technology
- Pre Alignment Checks
- Soft Foot Concept
- Alignment Methods
- Alignment with Dial indicator- Validity rule with Video
- Video /Movie Clips on Precision Shaft Alignment by Dial indicator
- Video /Movie Clips on Precision Shaft Alignment with Laser Alignment tool Open house
- Practical's on Real Machinery with Laser Alignment Tool Kit (Optional with available facility)



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**Day 3: Training Programme on “Vibration Analysis Fundamentals”**

- Fundamentals of Machinery Vibrations
- Vibration Standards for Various Equipment’s according to ISO 101816  
What & where to measure
- Spectrum Analysis with Video; Harmonics with Video
- Analysing Typical Machinery Problems
- Video /Movie Clips on Vibration Data Collection
- Video on FFT Analyser on Real Machinery
- Video on Shaft ORBIT Analysis
- Gearbox Vibration analysis
- Open house, Q&A, Discussion

**Prerequisite:** Basic knowledge of Mechanical Engineering and experience in maintenance will be helpful.

**Delivery Methodology:**

- Introduction and Objective Setting
- Pre and Post Test,
- Knowledge Presentations,
- Hands ON & Exercise,
- Case Study & Learning through Animations.
- Feedback and Assessment
- Discussion and Interaction.
- Delivery 9:30 AM to 17:00 PM including lunch/Tea breaks.

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**Registration Details:**

**Dates of the program:** 9-11 Sept 2019 at Nagpur (3 Days each).

**Participation fees:** INR 30000/- per delegate (Excluding GST@18%; Training program includes training material hard copies, Tea, Lunch & snack)

**Payment:** ECS/NEFT/DD in favor of “Centre for Industrial Solutions and Advanced Training” Payable at Nagpur, Maharashtra, India. Account No: 0509102000003353  
Bank: IDBI, Wardha- 442001, MS, India; IFSC Code: IBKL0000509; MICR Code 442259001. (GST Code: 27ABBPW5589J1ZV; SAC Code 99-9293; State Code 27)



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**Venue:** To be informed well in advance after registration confirmation before a week or at Pratapnagar Square, Nagpur-440022, Maharashtra.

**For Registration please do contact to,**

We prefer on line Registration through our web [www.cisat.co.in](http://www.cisat.co.in).

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**Contact for any In-house Training Program at your plant or location.**

Mrs Rupali, Director Business Development

**Centre For Industrial Solution and Advanced Training**

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