



Bearing: Maintenance & Reliability

Course Introduction:

Manufacturers today are under tremendous pressure to provide the highest possible quality at the lowest possible cost. Therefore, achieving maximum machine reliability is critical.

The Reliability Maintenance Institute (RMI) is a comprehensive offering of training courses designed to help plants eliminate machinery problems and achieve maximum reliability and productivity by utilizing the very latest in precision maintenance techniques.

Each course is designed to address a specific machine installation or maintenance problem and help you correct it. Some courses involve the use of highly sophisticated diagnostic equipment, while others are more basic in nature and cover such topics as bearing fundamentals and proper lubrication.

Course Objectives:

The course objective is to provide information to improve the service life of rolling bearings, which improves the reliability of rotating equipment.

On completion of this course, delegates will be able to

- Provide background and methodology for analyzing failed and damaged bearings and their components
- Uncover the true root causes of bearing damage and failures and reduced service life.

Who Should Attend?

This course is intended for mechanical maintenance engineer, supervisors, technicians, mechanics, planning manager, quality engineers, reliability engineers, managers, supervisors, store supervisors, electrical engineers, supervisors and technicians

Course Outline:

Day 1:

Basics of Bearings and Their Applications

- Rolling bearing theory

- Anti-friction bearing types and applications
- Plain bearing types and applications
- Meaning of “L 10 Life” and “Service Life”
- Application of fits and tolerances

Fundamentals of Lubrication

- How bearing lubrication works
- The importance of selecting the proper lubricant for an application
- Maximize bearing life through understanding of proper lubricating principles and functions
- How much and how often to lubricate rolling bearings

Day 2:

Seal Types and Application

- Contact seals, Non-contact seals
- Housing seal types

Principles of Mounting and Dismounting Bearings

- Cylindrical seating
- Tapered seating
- Adapter and withdrawal sleeves
- Cold and hot mounting and dismounting
- Mounting and dismounting using oil injection
- Principles of mounting plain bearings

Day 3:

Introduction to Bearing Failures and Their Causes

- Identify and interpret actual bearing failures

Practical Mounting and Dismounting of Bearings

- Preparation for mounting and dismounting
- Checking the components
- Mounting and dismounting tools

Day 4:

ISO 15243 – Bearing failure modes and classification

- Understand the main points that the ISO classification is based upon
- Understand the terminology and visual appearance of failure modes

Hands-on - Analysis of sample bearing failures

- Inspect a series of sample bearing failures and report the findings
- Group discussion on the cases and use SKF Bearing Inspector
- We encourage participants to bring a failed bearing (and machine history) from their plant, to analyze during the workshop sessions

Day 5:

المركز العالمي للتدريب والتطوير
International Centre For Training & Development

Monitoring Bearings

Condition monitoring of rolling element bearings using vibration analysis. List of Topics:

- Understanding Bearing Vibration
- Special vibration analysis technologies
- Spectral analysis of bearing damages and failure

Course Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request".

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Fees:

To be advised as per the course location. This rate includes participant's manual, and-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session