

Course Overview:

This course offers intensive insight into bearing life improvement and .The participant will gain knowledge in bearing selection, proper bearing lubrication and troubleshooting skills as well as predictive and preventive maintenance of bearings.

Course Objective:

The course presents a systematic approach to the basics of mechanical troubleshooting.. It first adopts a general approach to the importance of pumps, bearings maintenance and its main motives, then it explains what is meant by maintenance types, like preventive maintenance, corrective and adaptive maintenance and the skeletons of maintenance systems. Design, operating, and design pumps, bearings will be explained. Measurements, maintenance and the required misruling devices for pumps and bearings will be deeply involved in this course with some applications in other mechanical utilities.

Upon completion of this course, participants will gain also an understanding of basic utilities maintenance like Ammeters, Voltmeters, Wattcmeters, Power factor meters, Oscilloscopes, also they will be aware of troubleshooting problems and the associated actions to be taken, specially in the cases of equipment failure.

Course Outline:**INTRODUCTION TO BEARINGS**

- Bearing design
- Principle of bearing operation
- Bearing classification
- Bearing selection
- Shafts and shafting
- Shaft material and stress
- Vibration and critical speed

- Fits and clearance

CLASSIFICATION OF BEARINGS

- Plain bearings
- Antifriction bearings

PLAIN BEARINGS

- Principle of operation
- Advantages & disadvantages of plain bearings
- Types of plain bearings
- Characteristic of bearing materials
- Bearing materials
- Applications

ANTIFRICTION BEARINGS

- Principle of operation
- Advantages & disadvantages of antifriction bearings
- Types of antifriction bearings
- Characteristic of bearing materials
- Bearing materials
- Applications

BEARING SEALS

- Seal function

Training Language:

EN

Training Methodology:

- Presentation & Slides
- Audio Visual Aids
- Interactive Discussion
- Participatory Exercise
- Action Learning
- Class Activities
- Case Studies
- Workshops
- Simulation

- Types of seals and materials

- Seal selection

- Seal applications

BEARINGS TROUBLESHOOTING AND MAINTENANCE

- Bearing inspection

- Bearing repair

- Disassembly and reconditioning

- Bearing removal

- bearing installation

- Bearing failure terminology

- Bearing trouble shootings

LUBRICATION

- Principles Of Lubrication

- Oil lubricants

- Grease lubricants

- Types Of Lubricants

- Refining of lubricants

- Manufacture of lubricants

- Lubricants Characteristics

- Chemistry of lubricants

- Properties of lubricants (Viscosity, Flash point, Fire point, Pour point and Oxidation resistance)

- Lubricants selection (Load, Speed, Temperature and Environment)

ADDITIVES, LUBRICATING ACTION AND BEARING LUBRICATION

- Additive types

- Pour point depressants

- Oxidation inhibitors

- Viscosity improvements

- Antifoam agent

- Rust and corrosion inhibitors

- Extreme pressure additive

- Detergents

- Emulsifying agent

- Multipurpose lubricants

- How lubricants work

LUBRICANTS STORAGE AND HANDLING

- General types of storage (Inside & Outside Storage)

- Handling

- Purification

Who Should Attend:

1. Electrical, mechanical, and chemical Engineers.
2. Senior technicians who work in the electrical control and power utilities.

3. Technicians who would like to refresh their knowledge.
4. Mechanical and chemical Engineers who are interested in control subjects.