Mechanical Maintenance in Industrial Plants

Course general description:

This course provides personnel with the necessary skills to perform mechanical maintenance, including the removal and replacement of equipment (pumps, , motors, compressors, sealing and power transmission systems) and identification and rectification of bearing and lubrication faults within these systems.

The course introduces delegates to Mechanical Maintenance planning & scheduling, basic fault-finding techniques, health and safety and control of substances hazardous to health regulations as well and an introduction to how maintenance organizations are organized and operated. The final day culminates with a practical assessment that brings many of the elements learned throughout the course together allowing both staff and students to see how much progress is made.

Audience:

This course is designed for engineers, experienced maintenance technicians and operations supervisors. It is also suitable for Design Engineers, Plant Engineers, Facility Managers, Plant Operators, Safety Engineers and Recent College Graduates. It is also recommended for production operatives or for craft personnel already involved in maintenance activities.

Course objectives:

On completion of the course, participants will be able to

- Apply safe working practices and understand the principles of preventive and first-line maintenance
- Correctly diagnose a range of mechanical faults and plan a suitable course of action
- Understand the principles of power transmission systems
- Correctly remove and refit various types of bearings (roller, ball, etc) identify various bearing types, understand their typical applications & recognise common defects
- Manufacture gaskets and understand how to remove and replace mechanical seals and gland packing
- Understand the operation of various gearboxes, (helical, spur and worm-wheel)
- Correctly dismantle and replace drive belts
- Understand mechanical Maintenance Planning & Scheduling

Course duration:

5 days

Course location:

Dubai

Course contents:

Day-1

- Overview – Pretest
- Safety precautions when working with Mech. Maintenance
- Types of Mech. Maintenance

- Preventive and Predictive maintenance
- Diagnose a range of mechanical faults
- Principles of power transmission systems
- Fluid Machines
- Rotary Equipment

Day-2

- Bearing
- Types of bearings
- Bearing applications
- Common defects of bearing
- Antifriction Bearing
- Types of antifriction bearings
- Elements of antifriction bearings.
- Problems in antifriction bearings.
- Pump Types

Day-3

- Sealing methods
- Gaskets
- O Ring
- Packing
- Mechanical Seal
- Dry Gas Seal
- How to remove and replace mechanical seals and gland packing

Day-4

- Lubrication;
- Various types of friction.
- How materials wear.
- Various functions of lubricants in industry.
- How lubricants reduce friction.
- Classification of lubricants depending upon their composition, properties, and additives.
- Operation of various gearboxes, (helical, spur and worm-wheel)
- Drive belts
- Shaft Alignment
- Soft Foot

Day-5

- Vibration Analysis
- Balancing
- Looseness
- Corrosion
- Wear
- Mechanical Maintenance Planning

- Maintenance Scheduling
- Workshop – Case Studies
- Course Conclusion
- Posttest

Methodology:

- 50% lectures & concepts
- 10% Videos
- 10% Case studies
- 10% Exercises
- 10% Discussions
- 10% Software (if applicable or examples)

Course code: (TEME031)