



ANGELUS

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COURSE TITLE: ROTATING EQUIPMENT RELIABILITY OPTIMIZATION

Overview

This training is a comprehensive course focusing on how rotating equipment operates, their maintenance techniques and also provides guidelines and rules that ensure the successful handling of rotating equipment. The training will cover in detail the operating characteristics, specification, selection criteria, fault finding techniques, critical components and all preventive and predictive maintenance methods in order to increase reliability and reduce the operation and maintenance cost.

Learning Objectives

At the end of this course, participants will be able to:

- Understand the operating characteristics of rotating equipment
- Learn in detail all the diagnostic techniques and inspections required for critical components of rotating equipment
- Understand the maintenance and troubleshooting techniques for rotating equipment
- Learn the various methods used to maximize the efficiency, reliability and longevity of rotating equipment
- Understand all the calculations and sizing techniques used for rotating equipment
- Understand the causes and modes of failure of rotating equipment
- Understand Detailed fault finding including examination of equipment deterioration and the development of cost effective corrective measures

Methodology

Interactive lectures complemented with hands-on practice using various equipment, instruments and work benches

Target Participants

Utilities Engineers and Technicians, Mechanical Engineers/Technicians, Managers, Supervisors, Maintenance personnel and other technical persons

Duration

Five (5) days

Contents

- Definition of Rotating Equipment
- Classification of Rotating Equipment
 - ✓ Driven
 - ✓ Drivers or prime movers
 - ✓ Transmission devices
 - ✓ Auxiliary equipment

- **Pumps**
 - ✓ Centrifugal Pumps
 - ✓ Vibration Analysis and Predictive Maintenance
 - ✓ Centrifugal Pump Mechanical Seals
 - ✓ Troubleshooting of Pumps
 - ✓ Pump Selection
 - ✓ Bearings
 - ✓ Pump Drivers

- **Turbines**
 - ✓ Steam turbine function and types
 - ✓ Steam turbine performance
 - ✓ Gas turbine types and applications
 - ✓ Gas turbine performance

- **Mechanical Drives**

- **Bearing & Seals**

- **Compressors**
 - ✓ Centrifugal and Axial Compressors
 - ✓ Dynamic Compressors Performance
 - ✓ Compressor Seals
 - ✓ Compressor System Calculations

- **Electric Motors**
 - ✓ Induction Motors
 - ✓ Speed Control of Induction Motors
 - ✓ Maintenance of Motors

- ✓ Characteristics of Motors, enclosures and cooling methods, failures in three-phase stator windings, predictive maintenance, motor troubleshooting, diagnostic testing of motors, repair and refurbishment of ac induction motors
- ✓ Lubrication system and types
- ✓ Monitoring reliability and component condition