

Course Name: Steam Turbine Maintenance and troubleshooting.

Code:

DATE:

Course Objective:

Attendance to the Steam Turbines training course will enable participants to:

- Understand the basics of Turbine, Thermodynamics and principles of actions
- Become familiar with the mechanical design, configurations, application ranges and constraints for steam turbines.
- Learn about different turbine components, which include turbine rotors, balancing, rotor dynamics, casings, bearings, shaft sealing devices and lube oil management.
- Learn the selection and sizing of steam turbines for compressor drives & understand the operation
- Gain knowledge on troubleshooting effective maintenance management
- Learn examples from recent failure incidents attributed to design defects and maintenance deficiencies.

Program Methodology:

Steam Turbines training course will utilize a variety of proven learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes a lecture with active delegate participation including discussions, real-life problems and case studies. Through active participation in the group work and class discussions, the delegates will get a lot of opportunities to increase their experience and knowledge.

Pre & Post course assessments will be used to measure the effectiveness of this training.

Who Should attend?

The course will be of most benefit to delegates currently working in the maintenance and operations departments of the power generation industry including Maintenance Engineers, Supervisors, Operators, Plant Engineers, Equipment Professionals and Supervisors. The course will, however also be very beneficial to those involved in the procurement of new and replacement equipment

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Course Outline:

COURSE CONTENTS

Module 1 - Basics of Turbine and Thermodynamics

- KeyTopics:
 - Steam Thermodynamic features
 - Steam Properties and the Mollier Charts
 - Principle of Action
 - Types of Turbine
 - Impulse Turbines
 - Reaction Turbines
 - Configuration Variants, Application Ranges & Constraints

Module 2 - Steam Turbine Systems & Components

- KeyTopics:
 - Steam Turbine Components
 - Rotor Components
 - Reaction and Impulse Blading
 - Stator Blading
 - Steam Turbine Bearings
 - Lube Oil Systems
 - Sealing Systems
 - Governors and Control System

Module 3 - Design, Selection and Sizing of Turbine

- KeyTopics:
 - Main Elements and Technical Characteristics of Steam Turbine Design
 - Selection and Sizing of Steam Turbines for Compressor Drives
 - Steam (Water) Rates
 - Condensing and Backpressure Turbines

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- Single and Multistage Types
- Process Considerations

Module 4 - Operations of Steam Turbines

- KeyTopics:
 - Commissioning
 - Startup
 - Run-In and Shut-down
 - Surveillance and Health Monitoring
 - Performance Measurement
 - Monitoring and Tracking

Module 5 - Maintenance Management

- KeyTopics:
 - Machine Overhaul Process
 - Annual Maintenance Planning
 - Machines Piping and Ground Regulations
 - Alignment of Thermal Machines
 - Balancing of Rotating Machines
 - Surface Treatments of Sealing Interfaces
 - Online/Offline Washing
 - Troubleshooting through Vibration Analysis,
 - Oil Analysis and Thermography

Course Duration: (5) Day

Venue:

Time: Numbers of hours: Hours

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