STEAM TURBINE FAILURE ANALYSIS INSPECTION AND TROUBLESHOOTING

Course Overview:

This Course Has Been Designed for Individuals Who is Familiar with Steam Turbine to Understand and be able to make decisions relating for Steam Turbine Failure Analysis Inspection and Troubleshooting Maintenance and Overhauling. It Also Provides an Excellent Review for Individuals who Have Been Involved With Steam Turbine Auxiliaries.

Who Should Attend?

This course is recommended for anyone involved with the Failure Analysis Inspection, maintenance and troubleshooting of Steam Turbines. Such as Mechanical Maintenance Engineers, Under Development Engineers, Mechanical Maintenance Supervisors &Technicians and Operation Engineer

Course Objectives:

By the end of this course delegates will be able to:

- Identify Steam Turbine Fundamentals and Principles
- Describe The Major Components in Steam Turbine Auxiliary Systems.
- Describe The Function of Major Components in Steam Turbine Auxiliary Systems.
- Describe The Energy Conversions That Occur in Impulse and Reaction Turbines
- Explain The Function of Steam Turbine Valves and Governor System.
- Describe The Different Types of Normal and Emergency Operation Modes.
- Describe The Steam Turbine Protection.
- Describe The Steam Turbine Troubleshooting

Course Outline:

Module (01) Steam Turbine Classification

- Axial Flow Turbines
- Radial Flow Turbines
- Back Pressure Turbines
- Extraction Turbines
- Condensing Turbines

Module (02) Steam Turbine Components

- Rotors
- Casings
- Rotating Blades
- Stationary Blades (Diaphragms) and Labyrinth
- Steam Turbine Bearings
- Turbine Glands and Gland Seal Flow Diagrams

Module (03) Lubrication and Control Oil System

- Oil Flow Diagrams
- Oil Pumps

- Oil Vapor Extraction Unit
- Shaft Lifting Oil System
- Main Oil Tank
- Hydraulic Accumulator
- Oil Heat Exchanger
- Oil Purification Stations

Module (04) Condenser

- Purpose of the Condenser
- Condenser Types
- Operating Principle of Condenser
- Condenser Cleaning Units
- Leakage Detection

Module (05) Steam Turbine valves and Governor

- Steam Turbine Governor
- Mechanical
- Hydraulic
- Electronic
- Steam Turbine Valves
- Steam Turbine Turning Gear
- Steam Turbine Flanges Heating System
- Steam Turbine Steam traps System

Module (06) Steam Turbine Control Systems

- Purposes of Steam Turbine Control
- Control of Steam Turbines
- Speed Control - Admission Pressure Control
- Control Methods for Steam Admission
- Steam Turbine Control Loop

Module (07) Steam Turbine Performance

- Power Plant Efficiency
- Thermos dynamic efficiency
- Feed water heating
- Air Heating
- super heater – Reheat Steam
- Condenser Performance
- Temperature and speed increases
- Condition monitoring turbine warm up
- Operator responsibilities during speed rising process
- Increasing and Decreasing load

Module (08) Steam Turbine Protection

- Turbine Manual Trips
- Over Speed Trip Mechanisms
- Lubricating Oil Protection System
- Journal Bearing Protection System
- Thrust Bearing Protection System
- Low Vacuum Protective System
- Vibration Protection System
- Firs Fighting System

Summarize Lesson Learnt

Evaluation / Examination

·Course Closeout