Rotating Equipment Reliability Optimization & Continuous Improvement

Introduction:

Rotating equipment is essential for gas and oil processing plants. The designers as well as the operating and maintenance staff are usually confronting with major issues regarding the reliability, optimization and continues improvement of rotating equipment. The course presents the recent technological aspects in operation best practices,preventive and predictive maintenance that enhance the reliability of major rotating equipment mainly, gas turbines, pumps, blowers and fans. The course crosses the boundaries from the fundamental information to top notch in the recent technological achievement in this field.During the course participant's discussion, comments,bringing up their own problems are welcomed and encouraged.

Who Should Attend?

Mechanical, chemical and electric power engineers. Also advanced operating staff of rotating equipment.

Course Objectives:

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

- To lay out the main theories of reliability, optimization and continues improvement of rotating equipment.
- To enable the attendees to grasp the advanced information in preventive as well as predictive maintenance of rotating equipment
- To present different types of rotating equipment, flow characteristics through these equipment, components
- performance, operational and maintenance characteristics.
- To illustrate study cases for reliable operation and maintenance of different rotating equipment, mainly gas turbines, compressors, pumps, fans and blowers.
- To present the advanced condition monitoring technologies stressing on vibration and ultrasonic analysis.
- To present the system assisting and auxiliaries equipment such as measuring instruments and valves.

Course Outline:

Reliable Rotating Equipment

- Introduction to reliable rotating equipment.
- Basic fundamentals in reliability and fault analysis
- Life cost estimates for operation, maintenance and
- Upgrading
- Applying the predictive Maintenance
- Maintenance of Bearing
- Troubleshooting premature bearing failure
- Balancing & Measuring Techniques
- Shaft Alignment: Thermal Growth
- Vibration & Ultrasound Technologies
- Reliable measuring instruments and valves

Rotating Equipment Case Studies

Gas Turbines

- Flow through different components as compressors, combustion chambers and turbine
- Components characteristics
- Matching of components for efficient operation and maintenance
- Improvement performance with upgrading with advanced technologies

Compressors

- Flow characteristics through different types of compressors
- Compressor reliable operation
- Compressor surge control
- Preventive and predictive of compressor components
- Upgrading possibilities for efficient operation
- Study cases illustrating expected operational and maintenance problems
- Condition monitoring using advanced technologies

Fans and Blowers

- Centrifugal Blowers, Operation & Maintenance
- Positive Displacement Blowers, Selection of Fans &
- Blowers, Rotary Blowers

Pumps

- Types, Performance and Operation
- Pumping Methods
- Specific speed and specific diameter,
- Design operating conditions,
- Pumps Control and Selection
- Pump curves and piping system curves,
- Capacity control,
- Pumps Specifications