Pump Operations And Maintenance

Training program

Introduction:

The course will provide a detailed description of the design and maintenance of modern pumps.

Course Objectives:

The programme has been developed to provide a comprehensive training covering the operations and maintenance of Centrifugal & Hermetic Pumps as would be used in a modern process plant or power station.

Course Outline:

Day 1

Introduction to Pumps

- Centrifugal Pumps

- Positive Displacement Pumps
- Gear Pumps

Pump Selection

- Selection Criteria
- Pump Components and Design

  - ✓ Impellers
  - ✓ Diffuser
  - ✓ Seals and Bearing Design
  - ✓ Couplings
  - ✓ Drivers

Day 2

Pump Terminology

- Net Positive Suction Head
- Specific Speed
- Pump System Curves (Head, Capacity and System Curves
- Affinity Laws
- Pump Efficiency (Best Efficiency Point)

Installation and Operations

- Installation Criteria
- Operations of Pumps
- Pumps in Series/Parallel

Day 3

Pump Maintenance

- Bearing types and maintenance
- Journal Bearings and Thrust Bearings
- Seal types and maintenance
- Pump Stripdown and Rebuild
- Wear Rings
- Impellers

Pump Troubleshooting

- Fault Diagnosis
- Pump Cavitation

Day 4

Pump Alignment Techniques

- Rim and Face Alignment
- Reverse Alignment
- Laser Alignment

Pre-Alignment checks

- Soft foot
- Sag

- Run-out
- Mechanical Looseness
- Motor Magnetic Centre
- Piping Strain

Day 5

Practical Alignment Prepare graphs for graphic cold reverse alignment.

- Plot vertical readings.
- Plot horizontal readings
- Perform cold graphic alignment without error

Prepare graphs for desired readings

- Plot vertical readings.
- Plot horizontal reading

Perform Laser Alignment