

PUMP OPERATIONS AND MAINTENANCE (REF:OTSPOM001)

Course Objectives

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

Course Description

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

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



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Day 4

Pump Alignment

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

