



Practical Pump Technology



Introduction:

The course will introduce participants to the different types of pumps and their associated terminology. Centrifugal and positive displacement pumps, packing, mechanical seals and sealing systems, bearings and couplings will all be discussed.

The application of the different types of pumps will be discussed along with their suitability for different operational duties. Pump operation, troubleshooting and maintenance will be dealt with in depth.

Who Should Attend?

This seminar is directed towards Supervisors, Team Leaders and Professionals in Maintenance, Engineering and Production. The seminar will also benefit anyone who wishes to update themselves on pump technology, judge the suitability of different types of pumps for their needs, and learn how to operate and maintain them for the benefit of their organizations.

Course Objectives:

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

- Have an understanding of the different types of pumps.
- Be able to operate pumps as close as possible to the design efficiency.
- Will be able to monitor pump efficiency, availability and reliability.
- Have learnt about selection, operation and maintenance strategies.
- Be able to troubleshoot pump problems.
- Be able to critically analyze the methodologies employed within the organisation and instigate improvements where required.
- Optimize the operation and maintenance of different types of pumps.
- Carry out failure analyses on pumps thereby avoiding repetitive failures.

Course Outline:

Introduction

- Introduction
- Pump Types and Terminology
- Net Positive Suction Head (NPSH)
- Pump Performance (Centrifugal and Positive Displacement)
- Cavitation
- Hydraulic Pulsations and Pipe Vibration

Positive Displacement Pumps

- Reciprocating Pumps
- Reciprocating Pump Valves
- Rotary Pumps scroll and gear types
- Special Application Pumps metering pumps, diaphragm pumps
- Failure Mechanisms identification and monitoring

Centrifugal Pumps

- Centrifugal Pump Theory
- Matching Pumps with Drivers
- Pump Wear Rings and Balance Lines
- MultiStage Pumps
- Performance Analysis
- Failure Mechanisms identification and monitoring

Seals and Bearings

- Conventional Packing Glands
- Mechanical Seals
- Seal Failure Mechanisms
- Maintenance and Repair of Mechanical Seals
- Bearings failure modes and how to extend life

Reliability

- Couplings
- Alignment
- Planned Maintenance Predictive and Preventive
- Reliability Programs