Practical Pump & Valve Technology

28 Oct - 01 Nov 2018, Dubai
27 - 31 Oct 2019, Dubai
Introduction

The training seminar will introduce delegates to the different types of pumps and valves and their associated terminology. Centrifugal and positive-displacement pumps, packing, mechanical seals and sealing systems, bearings and couplings will all be discussed. Valves for isolation and valves for control will be addressed.

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

The knowledge gained in this training seminar will:
- Enable the delegate to optimise the operation and maintenance of different types of pumps
- Give the delegate confidence to carry out failure analyses on pumps thereby avoiding repetitive failures
- Allow tighter control of maintenance budgets by the avoidance of unplanned equipment failures in service

Objectives

At the end of this training seminar, participants will:
- Have an understanding of the different types of pumps and their associated terminology
- Have an understanding of Centrifugal and positive displacement pumps, packing, mechanical seals and sealing systems, bearings and couplings
- Have an understanding of different parameters affecting the operation of valves
- Have the ability to select the right valve for the particular application and to perform the necessary calculation for valve sizing
- Have the ability to perform troubleshooting of systems involving valves
- Have the ability to decide on the right maintenance plan concerning different types of valves

Training Methodology

The training seminar will be conducted along workshop principles with formal lectures, case studies and interactive worked examples. Relevant case studies will be provided to illustrate the application of each tool in an operations environment. Each learning point will be re-enforced with practical exercises. There will be ample opportunities for discussion and sharing experiences.

Organisational Impact

On completion of this training seminar, the delegate will be able to critically analyse the methodologies employed within the organisation and instigate improvements where required.

Personal Impact

Technical knowledge is key to effective control and peer respect within any maintenance organisation, when this is achieved personal satisfaction follows. This training seminar will give the delegate the required level of technical knowledge and skill to achieve that personal satisfaction.

Who Should Attend?

This training seminar is directed towards:
- Supervisors
- Team Leaders
- Technicians

The training seminar will also benefit anyone who wishes to update themselves on pump and valve technology, judge the suitability of different types of pumps and valves for their needs, and learn how to operate and maintain them for the benefit of their organisations.
# Seminar Outline

## DAY 1

**Pumping Systems**
- Introduction
  - Pump Types and Terminology
  - Pump Performance (Centrifugal and Positive Displacement)
- Understanding Head
  - Types of Head: Friction, Pressure, Static & Velocity
  - Friction in Valves, Piping & Fittings
  - Calculating Actual Head in a System
- Cavitation in Pumps and Valves
  - Net Positive Suction Head (NPSH)
  - Vapour and Gas Cavitation
  - Flashing vs. Cavitation

## DAY 2

**Pump Types**
- Positive Displacement Pumps
  - Reciprocating Pumps
  - Reciprocating Pump Valves
  - Rotary Pumps – scroll and gear types
  - Failure Mechanisms – identification and monitoring
- Centrifugal Pumps
  - Centrifugal Pump Theory
  - Pump Components
  - Matching Pumps with Drivers
  - Performance Analysis
  - Failure Mechanisms – identification and monitoring

## DAY 3

**Achieving Pump Reliability**
- Sealing Systems
  - Conventional Packing Glands, Mechanical Seals & Flush Plans
  - Seal Failure Mechanisms
  - Maintenance and Repair of Mechanical Seals
- Bearings – failure modes and how to extend life
  - Lubrication
  - Plain Bearings
  - Anti-Friction Bearings
- Couplings & Alignment
  - Couplings
  - Alignment & Balancing
  - Foundations & Bedplates

## DAY 4

**Valves Technology**
- Types of Valves (globe, gate, ball, plug, check)
- Flow Characteristics
  - Flow through valves
  - Valve flow characteristics
  - Linear, quick opening & equal %
- Valve Sizing
  - Calculating the correct Cv value
  - Selecting Valve Size Using Valve Coefficient
  - Calculations for Correct Valve Selection
- Sealing Performance
  - Leakage Classifications
  - Sealing Mechanisms
  - Valve Stem Seals

## DAY 5

**Valves Troubleshooting & Maintenance**
- High Pressure Drop
  - Pressure Recovery Characteristics
  - Flow Choking
  - High Velocities
- Water Hammer
  - What causes Water Hammer?
  - Solutions for Water Hammer
- Troubleshooting the Control & Isolation Valves
  - Review of Common Faults
  - Developing a Preventive Maintenance Plan
- Review of the Week & Wrap-Up

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# Practical Pump & Valve Technology

**REGISTRATION DETAILS**

LAST NAME:________________________________________

FIRST NAME:_______________________________________

DESIGNATION:_____________________________________

COMPANY: ________________________________________

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COUNTRY: ________________________________________

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**AUTHORISATION DETAILS**

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☐ Please invoice my company

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**CERTIFICATION**

Successful participants will receive GLOMACS’ Certificate of Completion

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**4 WAYS TO REGISTER**

Tel: +971 (04) 425 0700

Fax: +971 (04) 425 0701

Email: info@glomacs.com

Website: www.glomacs.com

**TERMS AND CONDITIONS**

- Fees – Each fee is inclusive of Documentation, Lunch and refreshments served during the entire seminar.
- Mode of Payment – The delegate has the option to pay the course fee directly or request to send an invoice to his/her company/ sponsor. Credit card and cheque payments are both acceptable.
- Cancellation / Substitution – Request for seminar cancellation must be made in writing & received three (3) weeks prior to the seminar date. A US$ 250.00 processing fee will be charged per delegate for each cancellation. Thereafter, we regret that we are unable to refund any fees due, although in such cases we would be happy to welcome a colleague who would substitute for you.
- Hotel Accommodation – is not included in the course fee. A reduced corporate rate and a limited number of rooms may be available for attendees wishing to stay at the hotel venue. Requests for hotel reservations should be made at least three (3) weeks prior to the commencement of the seminar. All hotel accommodation is strictly subject to availability and terms and conditions imposed by the hotel will apply.
- Attendance Certificate – a certificate of attendance will only be awarded to those delegates who successfully completed/ attended the entire seminar including the awarding of applicable Continuing Professional Education Units/Hours.
- Force Majeure – any circumstances beyond the control of the Company may necessitate postponement, change of seminar venue or substitution of assigned Instructor. The Company reserves the right to exercise this clause and implement such amendments.
- Fair Access / Equal Opportunities – In the provision of its services as a world-class Training Provider, the Company is committed to provide fair access / equal opportunities throughout the delivery of its courses and assessment leading to the completion of training seminars, or 3rd party qualifications/certifications.

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P.O. Box 74653 Dubai, U.A.E.

T: +971 (04) 425 0700  |  F: +971 (04) 425 0701

E: info@glomacs.com  |  W: www.glomacs.com

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