Human Capital Associates Global Consult Ltd RC: 1462051

Workshop on Practical Pump and Valve Technology
May 6 – 10, 2024, 1st Run: Lagos & Port Harcourt
November 11 – 15, 2024, 2nd Run: Lagos & Abuja
For Tutor -Led Class: 9am – 4:30pm
Workshop fee: N300, 000 per Participant
For online: Delivery via Zoom
Online course fee: N250, 000 per Participant
Available for In-plant Training

600 U$D Equivalent for foreign Participants

Program Overview:
This program is designed to expose participants to the different types of pumps and valves and their associated terminology, 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 organizations. 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.

For whom:
This course is particularly aimed at operating personnel performing in oil & gas production as well as process and maintenance engineers. The course shall also be beneficial to other technical personnel who want to broaden their knowledge on the operations and maintenance of pumps and valves technology.

Learning objectives:
At the end of this program, participants will be able to: ·

- list and explain the different types of pumps and their associated terminology;
- differentiate between Centrifugal and positive displacement pumps, packing, mechanical seals and sealing systems, bearings and couplings;
- explain the different parameters affecting the operation of valves;
- select the right valve for the particular application and to perform the necessary calculation for valve sizing;
- perform troubleshooting of systems involving valves; and
- decide on the right maintenance plan concerning different types of valves.

Course outline:

DAY 1: Pumping Systems

- Introduction, o 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 versus 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

D AY 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, o Valve stem seals

DAY 5: Valves Troubleshooting & Maintenance

- High Pressure Drop
- Pressure Recovery Characteristics, o
    - Flow Choking, o
    - High Velocities
- Water Hammer
- What causes water hammer?
    - Solutions for water hammer
- Troubleshooting the Control & Isolation Valves
- Review of common faults, o
    - Developing a Preventive Maintenance Plan
- Review of the Week & Wrap-Up

LOCATIONS
1 - HCA Learning Centre. Acme House 2nd Floor, 23, Acme Road, Ogba, Industrial Scheme, Ikeja, Lagos, Nigeria

2 - Green-Minds Hotel, Plot 764, Cadastral Zone B05, E. Ekukinam Street, Utako District, Abuja

3 – Pakiri hotel Ltd., 4 Okwuruola Street, off Stadium Road, Rumuola, Port Harcourt, Rivers State.

Open Course Fee: N300, 000
In-plant Fee Negotiable

WORKSHOP FEE:
N300, 000 per participant, VAT –N22, 500
Note: this covers Workshop Fee, Tea/coffee break, Lunch, course materials and certificate of attendance.
Payment should be made into our Accounts:
Account Name: Human Capital Associates Global Consult Ltd.
Union Bank of Nig. PLC: Account No: 0097961537
First Bank of Nig. PLC: Account No: 2033683960
Keystone Bank Ltd.: Account No: 1007150325

For Booking / Enquiry, Call: 234-8051365946, 234-7087578814 24/7 Lines: 234-8068933608, 234-8029170491, 234-8145745664, & 234-9112830607

Training Methodology

Lectures, discussions, exercises, case studies, audio-visual aids will be used to reinforce these teaching/learning methods.