IFP Training

This training course is offered under the **Alliance4Training** brand

Training - Pumps Operation

PUMPOP-EN-P | **Face-to-face only** | **5 days**

This course provides a better understanding of centrifugal and positive displacement pumps technology and operating principles

Level

Skilled

Public

- Engineers and technicians involved in centrifugal and positive displacement pump operation or engineering
- Employees in charge of running and checking pumping system

Objectives

Attendees will be able to implement the following skills:

- Describe the behavior and the operation of pumps
- Analyze the technical solutions applied in their units
- Establish a diagnosis of the incidents and participate in the troubleshooting meetings
- Identify essential elements in pump selection

Pedagogical & technical resources

- Functional approach for a better understanding
- Numerous examples and cases studies from the Oil & Gas production industry and analysis of manufacturer file

Assessment of achievements

Written test upon training course completion

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PUMPING PREREQUISITES — 0.5 day

Pump performance:

- Hydraulic pumping fundamentals.
- Pressure, flowrate, specific gravity, friction losses, centrifugal force, height/pressure relation, mechanic and hydraulic power, vapor pressure curve, energy conservation.
- Pump choice and typical upstream implementations.

TECHNOLOGY & PERFORMANCE — 2 days

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Centrifugal pumps:

- Functional approach: study step by step of the main functions; process (impeller, wear rings, balancing, pump body shape...); sealing: mechanical sealing, typical arrangements (single, dual, dry seal), selection according API 382 standard, materials, type, friction face heating; support (axial and radial, thrust and journal bearings); lubrication (oil and grease...); monitoring (rotor displacement, vibrations, temperature, pressure...).
- Building step by step a monocellular centrifugal pump.

Positive displacement pumps:

- Different types of pumps: rotary and reciprocating pumps.
- Operating principle and utilization of the different types of pumps.
- Influence of clearance, internal leaks, nature of product on flow rate and pressure.
- Flow rate control.
- Installation guidelines: position of tanks, line diameters, metering drums, pulsation dampeners, pressure valves.

Particular choices:

- Coupling and driven machines.
- ATEX: material consequences.

OPERATION & MONITORING — 1.5 days

Preparation: filling, draining; spare pumps: heating, ancillaries.
Start-up/shutdown: priming, controls, hammer shock, risks for process and pump.
Surveillance: parameters (vibration levels, noises, bearing housing temperature, motor intensity, pressures); impact of stream parameters; hazards.
Parallel and series operations: risks, dysfunction.

TROUBLESHOOTING — 0.75 day

Troubleshooting of most frequent problems (cavitation, priming situation, low flowrate...).

SAFETY IN OPERATION — 0.25 day

Leaks, vibrations, feed, overcharge...
Analysis of industrial incidents and accidents.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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