

Training
Course

Pump Operation, Maintenance and Troubleshooting

Course Plan

Introduction

Pumps are essential components in a wide range of industries including water treatment, oil and gas, petrochemicals, HVAC systems, and manufacturing. Their proper operation, maintenance, and troubleshooting are critical to ensure system reliability and efficiency. This course equips participants with the theoretical knowledge and hands-on skills to operate, maintain, and troubleshoot various types of pumps effectively.

Course Objectives:

- ✓ Identify different types of pumps and their applications.
- ✓ Understand the working principles of centrifugal and positive displacement pumps.
- ✓ Apply proper pump start-up and shut-down procedures.
- ✓ Implement preventive and corrective maintenance techniques.
- ✓ Diagnose and troubleshoot common pump failures.
- ✓ Make informed repair or replacement decisions.
- ✓ Interpret and analyze pump performance curves.
- ✓ Improve pump efficiency and reduce energy consumption.

Who Should Attend?

- Mechanical Maintenance Technicians
- Pump Operators
- Production and Processing Personnel
- Petroleum Engineer
- Field and Plant Engineers
- Maintenance Supervisors
- Technical and Engineering Students

Training Methods:

- ✓ Online Video material.
- ✓ Presentation.
- ✓ Live Interactive sessions.
- ✓ Course presenter will make extensive use of all tools that will be needed for the virtual environment.
- ✓ Questions & Answers

Course Outline:

Day One

- Introduction to Pumping Systems and Industrial Applications
- Types of Pumps: Centrifugal vs. Positive Displacement
- Main Components of Pumps and Their Functions
- Reservoir Engineering Tools and Techniques
- Operating Principles of Centrifugal Pumps
- Operating Principles of Positive Displacement Pumps

Day Two

- Flow, Head, and Pressure Calculations
- Maintenance Procedures and Troubleshooting Techniques
- Pump Failure Analyses
- Reading and Understanding Pump Performance Curves
- Best Efficiency Point (BEP) and Its Importance
- Pump Selection Criteria Based on Application
- Installation of Pumps and Piping Layout

Day Three

- Start-up and Shut-down Procedures
- Preventive and Predictive Maintenance Techniques
- Lubrication and Vibration Control
- Mechanical Seals: Inspection and Maintenance
- Pump and Motor Alignment Techniques

Day Four

- Common Pump Problems and Their Causes (Cavitation, Overheating, etc.)
- Pump Operation/Pump Reliability
- Troubleshooting Methods and Tools
- Manual and Automatic Pump Control Systems
- Deep Well and Feedwater Pumps
- Corrective Maintenance and Repair Planning

Day Five

- Suction and Discharge Piping Design Considerations
- Energy Management and Pump Efficiency Optimization
- Workplace Safety and Best Practices Around Pumps
- Real-world Case Studies and Problem Solving
- Practical Sessions and/or Virtual Simulations
- Pump Packing

Training Details

Course Duration	5 Days
Pre-Schedule	22 - 26 Sept 2025
Venue	Madrid - Spain - Perciados hotel
Training Fees Per Person	KWD 1800 (One Thousand Eight Hundred Only)
Course Fees Include	<ul style="list-style-type: none"> ✓ Tuition documentation ✓ Curriculum and Training Handout ✓ Five star Lunch ✓ Completion Certificates