

# € TRAINING

Pump and Compressor Maintenance





# Pump and Compressor Maintenance

## Introduction:

This training program focuses on equipping participants with the knowledge and skills necessary for effective operation, maintenance, troubleshooting, and repair of pumps and compressors. It empowers them to maximize operational performance and minimize downtime.

## Program Objectives:

By the end of this program, participants will be able to:

- Understand the fundamentals of pumps and compressors.
- Gain proficiency in operating different types of pumps and compressors.
- Learn preventive and predictive maintenance techniques.
- Develop skills in troubleshooting and diagnosing common issues.
- Implement effective repair strategies to ensure system reliability.

## Target Audience:

- Maintenance engineers and technicians.
- Mechanical engineers and plant operators.
- Reliability engineers and maintenance supervisors.
- Professionals involved in the operation and maintenance of pumps and compressors.

## Program Outline:

### Unit 1:

#### Fundamentals of Pumps and Compressors:

- Introduction to Different Types of Pumps and Compressors.
- Basic Operating Principles.
- Key Components and Their Functions.
- Applications and Industry Use Cases.

- Standards and Specifications.

## Unit 2:

### Pump Operation and Performance:

- Centrifugal Pumps: Operation and Characteristics.
- Positive Displacement Pumps: Types and Applications.
- Performance Curves and Pump Selection.
- Flow and Pressure Measurement.
- Operating Best Practices.

## Unit 3:

### Compressor Operation and Performance:

- Reciprocating Compressors: Operation and Characteristics.
- Rotary Compressors: Types and Applications.
- Centrifugal Compressors: Performance and Applications.
- Capacity Control and Performance Curves.
- Operating Best Practices.

## Unit 4:

### Preventive Maintenance of Pumps:

- Routine Inspection and Maintenance Procedures.
- Lubrication Practices and Techniques.
- Seal and Bearing Maintenance.
- Alignment and Balancing.
- Maintenance Scheduling and Record Keeping.

## Unit 5:

### Preventive Maintenance of Compressors:

- Routine Inspection and Maintenance Procedures.
- Lubrication Practices and Techniques.
- Seal and Bearing Maintenance.
- Alignment and Balancing.
- Maintenance Scheduling and Record Keeping.

## Unit 6:

### Troubleshooting Pumps:

- Common Pump Failures and Causes.
- Diagnosing Cavitation and Vibration Issues.
- Addressing Seal and Bearing Problems.
- Flow and Pressure Troubleshooting.
- Case Studies and Practical Examples.

## Unit 7:

### Troubleshooting Compressors:

- Common Compressor Failures and Causes.
- Diagnosing Vibration and Noise Issues.
- Addressing Seal and Bearing Problems.
- Flow and Pressure Troubleshooting.
- Case Studies and Practical Examples.

## Unit 8:

### Repair Techniques for Pumps:

- Disassembly and Reassembly Procedures.
- Component Inspection and Replacement.
- Seal and Bearing Replacement.
- Wear and Corrosion Repair.

- Testing and Commissioning after Repair.

## Unit 9:

### Repair Techniques for Compressors:

- Disassembly and Reassembly Procedures.
- Component Inspection and Replacement.
- Seal and Bearing Replacement.
- Wear and Corrosion Repair.
- Testing and Commissioning after Repair.

## Unit 10:

### Best Practices and Advanced Topics:

- Energy Efficiency in Pump and Compressor Operation.
- Advanced Diagnostic Tools and Techniques.
- Implementing Reliability-Centered Maintenance RCM.
- Future Trends and Innovations.
- Continuous Improvement and Performance Optimization.