

## CENTRIFUGAL PUMPS MAINTENANCE & TROUBLESHOOTING

<b>Start Date:</b>	10/08/2026	<b>End Date:</b>	14/08/2026
<b>Categories:</b>	Engineering & Maintenance	<b>Venues:</b>	Amsterdam
<b>Formats:</b>	In Person	<b>Instructors:</b>	

### OVERVIEW

This technical course provides practical knowledge of centrifugal pump systems, covering their design, performance, maintenance, and troubleshooting techniques. Participants will gain hands-on insight into diagnosing failures, improving reliability, and optimizing performance for process-critical equipment.

### OBJECTIVES

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

- Understand the operating principles of centrifugal pumps.
- Perform routine maintenance and alignment procedures.
- Diagnose mechanical seal failures, cavitation, and vibration issues.
- Select the right pump based on system requirements.
- Apply predictive maintenance tools to minimize unplanned downtime.

### COURSE OUTLINE

1- Introduction to Centrifugal Pump Principles  
2- Components, Operation, and System Integration  
3- Maintenance Procedures and Inspection Standards  
4- Common Failures: Causes, Detection, and Prevention  
5- Performance Optimization and Predictive Techniques

### TARGET AUDIENCE

All Supervisory Levels, Mechanical technicians, maintenance engineers, reliability specialists, and plant supervisors working with rotating equipment.

### METHODOLOGY

Hands-on disassembly/assembly, alignment practice, vibration demos, fault diagnostics, and group troubleshooting activities.

### CONCLUSION

Participants will be capable of maintaining and troubleshooting centrifugal pumps to ensure smooth and safe plant operations while minimizing operational disruptions.

## DAILY AGENDA

### **Day 1: Pump Theory and Design**

Explore hydraulic principles, pump components, and the head-flow relationship.

### **Day 2: Operation and System Behavior**

Study system curves, NPSH, cavitation effects, and performance indicators.

### **Day 3: Maintenance and Alignment**

Perform mechanical seal inspections, bearing checks, and coupling alignment.

### **Day 4: Troubleshooting Techniques**

Address common failures including vibration, leakage, and impeller wear.

### **Day 5: Predictive Tools and Optimization**

Use thermography, vibration analysis, and flow data to improve reliability.

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