



Advanced Practical Centrifugal Pump

Training program



Introduction:

The over-riding aim of the pump and system training course is to reduce the costs associate with owning and running pumps. Organizations spend millions running and repairing pumps. Nine out of ten pumps fails early. If we can improve reliability we can reduce the cost of owning pumps considerably. Power is a major cost for any organization. If we can reduce the amount of power required to run our pumps, we can reduce the cost of owning them considerably. This course will give attendees the ability to improve pump reliability and reduce power consumption and therefore make a huge difference to the organization's profitability.

Who Should Attend?

Mechanical Engineers, General Supervisors, Consulting Engineers, Design Engineers, Foremen, Supervisors, Technicians, Maintenance Personnel, Engineers of all disciplines, Supervisors, Team Leaders and Professionals in Maintenance, Engineering and Production Managers, Maintenance Personnel, Heads of Maintenance and Operation, Chemical Engineers, Equipment Specialists, Technical Engineers, Operation Engineers, Planning Engineers, Process Engineers, Reliability Specialists, Boiler Plant Construction Managers, Consulting Engineers, Design Engineers, Insurance Company Inspectors, Operation, Maintenance, Inspection and Repair Managers, Supervisors and Engineers, Plant Engineers, Senior Boiler Plant Operators, Repairers and Installers, Product Engineers and Technologists, Operation, technical service and maintenance professionals, Engineers, Consultants and Sales professionals, Technical professionals responsible for interdisciplinary energy projects, Load Lifting Engineers and Supervisors, Mobile Cranes Operators, Mobile Cranes Maintenance Engineers and Technicians, Mobile Cranes Inspectors, Load Lifting Safety Engineers and Professionals, all staff roles in engineering, technical and supporting departments with responsibility for ensuring safety in the workplace and for conducting, leading, reviewing and approving incident investigations, all technical engineers and professionals who handle and are responsible for their organizations' pumps and systems; as well as the overall smooth operations and processes of their organizations' plants and machineries

Course Objectives:

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

- Understand how the system controls the pump
- Learn how to read a pump curve and how pumps really operate
- Learn how the flowrate impacts on pump reliability, what is the reliable operating range
- Design better systems and select better pumps, leading to improved reliability
- Avoid operational problems that lead to pump failures
- Understand what cavitation is, why it occurs and how to avoid it
- Know how pumps should be installed and commissioned, avoid those common commissioning failures
- Learn why pumps vibrate and why seals and bearings fail

Course Outline:

- Introduction
- Pump operating principle
- Systems design / pump selection
- Controlling the flowrate
- Liquid properties and pump performance
- Calculating pump performance for speed or impeller diameter changes
- Operating more than one pump in a system
- Positive suction head and cavitation
- Sealing options
- Pump mechanical construction options
- Mechanical construction vs. Reliability
- Flowrate vs reliability
- Pumps for low NPSHA applications

- The oil industry standard, API 610
- Purchasing reliable pumps
- Installation and commissioning
- Pump maintenance
- Monitoring and instrumentation
- Troubleshooting problems
- Internal wear and loss of performance