PRACTICAL
PUMPS AND COMPRESSORS
CONTROL, OPERATION, MAINTENANCE AND TROUBLESHOOTING

YOU WILL LEARN HOW TO:

- Explain and understand pump/compressor terminology
- Identify the various types of pumps/compressors
- Understand pump/compressor characteristics and interpret pump/compressor curves
- Understand pump/compressor types and classification
- Understand criteria for pump/compressor selection
- Perform a number of simple pump/compressor calculations
- Confidently test and commission pump/compressor sets
- Explain how pumps/compressors are constructed
- Detail how to install, test and commission pump/compressor systems
- Explain how to start up a new pump/compressor or one after strip down for maintenance

WHO SHOULD ATTEND:

- Plant Operations and Maintenance Personnel
- Consulting Engineers
- Design Engineers
- Process Technicians
- Plant Engineering Managers and Supervisors
- Process Control Engineers and Supervisors
- Mechanical Engineers
- Pump/Compressor Sales Engineers
- Pump/Compressor Service Contractors
- Pump/Compressor Operators
- Plant Engineers

The Workshop

The pumps and compressor workshop is a comprehensive course focussing on the fundamentals of centrifugal pumps and compressors.

You will have an opportunity to discuss pump/compressor construction, design applications, operations, maintenance and management issues and be provided with the most up-to-date information and best practice in dealing with the subject. Towards the end of the workshop, you will have developed the skills and ability to recognise and solve simple pump/compressor problems in a structured and confident manner.

This is not an advanced course but one focussing on the fundamentals and therefore will not be suitable for you if you are a pump or compressor "guru"!

Practical Sessions

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed.

To gain full value from this workshop, please bring your laptop/notebook computer.

The Program

INTRODUCTION
- What constitutes a good pump/ compressor
- Safety
- Reliability
- Efficiency
- Risk consideration
- Life cycle cost consideration
- Overview of statutory requirements

CENTRIFUGAL PUMP DESIGN AND CONSTRUCTION
- Casings
- Impellers
- Axial/radial forces
- Pump/compressor shafts
- Shaft seals - balanced/unbalances, seal wear patterns
- Drives and couplings
- Supports and pipe connections
- Auxiliaries

CENTRIFUGAL PUMP CHARACTERISTICS AND OPERATION
- Hydraulic properties of pumps
- QH curves
- PQ curves
- Speed changes on curves

PUMP SPECIFICATION AND SELECTION
- System analysis
- Data sheets
- Bid requests/reviews/analyses

PUMP TESTING AND INSPECTION
- Material inspection requirements
- Shop tests
- Performance test procedures
- Site locations
- Pump foundations
- Associated piping and fittings
- Pre-operational checks
- Operation of pump

PUMP MAINTENANCE
- Pump breakdown and removal
- Single stage pump dismantling and repair
- Preparation for re-assembly
- Pump assembly
- Vertical and multistage pump repairs

INTRODUCTION TO COMPRESSORS
- What is a compressor
- Basic criteria for compressor selection
- Compressor definitions

RECIPROCATING COMPRESSORS
- Principles and mechanics
- Definitions
- Parts of a reciprocating compressor
- Maintenance of reciprocating compressors
- Performance of reciprocating compressors
- Mechanical forces

CENTRIFUGAL COMPRESSORS
- Introduction
- Principle of operation
- Operation
- Parts of centrifugal compressors
- Casing configurations
- Types of compressors
- Performance of centrifugal compressor
- Polytrophic compressor
- Characteristic curves
- Compressor controls

SUMMARY, OPEN FORUM AND CLOSING