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

IDC TECHNOLOGIES

Technology Training that Works

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"!

THE PROGRAM

DAY ONE

INTRODUCTION

- What constitutes a good pump/compressor or 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

DAY TWO

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
- Polytropic compressor
- Characteristic curves
- Compressor Controls

SUMMARY, OPEN FORUM AND CLOSING