



Training Course :

**Pumps & Gas Compressors: Operation
, Maintenance & Troubleshooting**

Training Course For One Week In

**Turkey - Istanbul - CVK Taksim
Hotel**

Which Be Held As Under Details :



Abar Solutions Petroleum Consultancy Invite Your Employee To Participate With Us In Special Training Course As Under Details:

Course Name		Pumps & Gas Compressors: Operation, Maintenance & Troubleshooting				
Code	Period	Language	Start	End	Location	Fees
ME 002	5 Days	Bilingual (Arabic & English)	23/01/2017	27/01/2017	Turkey – Istanbul – CVK Taksim Hotel	1750 KD (15% For Individual Registration) & (25% For Group Registration)
			20/02/2017	24/02/2017		
			13/03/2017	17/03/2017		
			24/04/2017	28/04/2017		
			22/05/2017	26/05/2017		
			12/06/2017	16/06/2017		
			10/07/2017	14/07/2017		
			14/08/2017	18/08/2017		
			18/09/2017	22/09/2017		
			16/10/2017	20/10/2017		
			13/11/2017	17/11/2017		
			18/12/2017	22/12/2017		

**** The Fees Includes : Lecturer , Training Material , Training Room With One Coffee Break Daily , Certificate Of Attendance In Last Day Training Course ****

Course Description

⇒ Pumps and compressors are generally critical machines in any production process, and hence it is vital that maintenance is most effective for these units. This course is to provide the participants with a strong background in the field of advanced maintenance and troubleshooting for (Pumps, Compressors, and turbines) the emphasis is placed on understanding the advanced and new techniques of troubleshooting and different methods of maintenance. During the course participant’s discussion, comments, bringing up their own problems are welcomed and encouraged. During the course, participant’s discussion, comments and own problems are welcomed and encouraged. Short tests will be performed to direct the presented material. Pump running with least troubles and consequent less downtime improves whole system reliability. Right selection & operation, effective maintenance & inspection programs, and skilled staff are essential factors for prolonged pump life. All the above can be achieved only via deep understanding of the pump construction, operation, maintenance and effective controlling methods. This course is a must for anyone who is involved in the selection, sizing, Applications or maintenance of compressors, pumps, and bearings. It covers how this equipment operates and provides the

guidelines and rules that must be followed for a successful application. Their basic design, specification and Selection criteria, sizing calculations as well as all maintenance issues.

Course Objectives

- ⇒ From a component-by-component perspective, the programme investigates the root causes of failure, and relates these to operating conditions and process parameters. Design, installation, lubrication and wear related failure mechanisms are identified and a detailed understanding of the troubleshooting and diagnostic methods needed to detect and identify these is developed. The course provides participants with the knowledge needed to be effective in the inspection, monitoring and diagnostics of pumps and compressors, with emphasis placed upon the importance of a combined condition monitoring and strip-down inspection approach to maintenance.

Course Content & Outlines

- ⇒ INTRODUCTION TO PUMPS & COMPRESSORS
- Types and applications of pumps and compressors
 - Basic pump theory
 - General Safety Requirements
 - Pump Performance Basic Terms
 - Pumping Factors
 - Compressors: Overview: Compression Methods
 - Positive-Displacement Compressors
 - Root-Dynamic Compressors
- ⇒ CLASSIFICATION OF PUMPS
- Dynamic pumps
 - Centrifugal pumps
 - Positive displacement pumps
 - Reciprocating pumps
 - Rotary pumps
 - Pump glossary
- ⇒ PUMPS SYSTEMS
- Important characteristics of pump systems
 - Energy and head in pump systems
 - Static Head & Total Head
 - Pump Characteristic Curve
 - Pipe Friction Calculation

⇒ PUMPS OPERATION

- Pump Start Up and Shut Down
- Parallel and Series Operation
- Capacity Regulation
- Priming of Centrifugal Pumps
- Abnormal Operation

⇒ PUMPS DRIVERS

- Electric Motors
- Hydraulic Turbines
- Internal Combustion Engines
- Steam Turbines
- Gas Turbines

⇒ PUMPS & COMPRESSORS MAINTENANCE

- Overview of Maintenance Practice
- Pump Maintenance Procedure
 - Lubrication
- The role of condition monitoring in pump and compressor maintenance Diagnostic methods
- Capabilities and limitations of condition monitoring, and the need for a combined approach
- The importance of plant inspection
- Measurement devices, and what to monitor and where
- Centrifugal Pump: Construction Performance Maintenance Troubleshooting
- Positive-Displacement Pumps: Types, Performance, Troubleshooting
- Compressors: Centrifugal Maintenance and Troubleshooting
- Rotary Maintenance and Troubleshooting
- Turbines: Design and construction of different types of gas turbines.
- Auxiliary systems: air inlet system, exhaust system, regenerators, seals.
- Gas turbine Maintenance and common problems.
- Gas turbine troubleshooting

⇒ PUMPS PROCUREMENT

- Engineering of system requirements
- Specifying the Pump
- Selection of Pump and Driver
- Bidding and Negotiation & Evaluation of Bids

⇒ FIELD PROCEDURES AND REMEDIAL STEPS

- Onsite Inspection
 - Miscellaneous remedial steps

⇒ PUMPS PROBLEMS

- Cavitations
- Check list for Centrifugal Pump Troubles
- Check list for Rotary Pump Troubles
- Check list for Reciprocating-Pump Troubles