



Training Course :

Measurement & Control Appreciation

Training Course For One Week In

UAE , Dubai , Cityseason Suites
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		Measurement & Control Appreciation			
Code	Period	Language	Start	End	Location
ICT 021	5 Days	Bilingual (Arabic & English)	13/08/2017	17/08/2017	UAE , Dubai , Cityseason Suites Hotel
			03/09/2017	07/09/2017	
			08/10/2017	12/10/2017	
			12/11/2017	16/11/2017	
			10/12/2017	14/12/2017	
			14/01/2018	18/01/2018	
			11/02/2018	15/02/2018	
			11/03/2018	15/03/2018	
			15/04/2018	19/04/2018	
			20/05/2018	24/05/2018	
			10/06/2018	14/06/2018	
22/07/2018	26/07/2018				

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

Course Description

- ⇒ This course consists of pressure, level, flow, temperature measurement, signal transmission techniques, process control concepts of Proportional, Integral, Derivative (P.I.D) and complex control.
- ⇒ To provide an appreciation of the operation and application of process plant instrumentation used for the measurement and display of the main process variables of pressure, level, flow and temperature.
- ⇒ Also provides an appreciation of the principles of industrial automatic process control and the practical application of these on process plant control systems.

Course Objectives

- ⇒ Describe the instruments basic elements of various measurement
- ⇒ Understand the principles behind the methods of generating measurement signals related to process variable changes.
- ⇒ Demonstrate a knowledge of pneumatic and electronic instruments used to transmit process variable measurement signals to displays.
- ⇒ Calibrate a variety of instrumentation systems used to measure and display process variable changes.
- ⇒ Apply the concepts and principles of process measurement to other process systems.
- ⇒ Know how the elements of a process control loop are connected to make a control system.
- ⇒ Understand the operation and application of control valves and valve positioners in a process control loop.
- ⇒ Understand the generation of proportional, integral and derivative actions, modes of control and their practical applications.
- ⇒ Understand and apply open and closed loop process control loop tuning techniques to demonstrate process plant systems.
- ⇒ Describe the effects of changing controller settings to control the process response of a plant.

Course Content & Outlines

⇒ **Pressure Measurement**

- Pressure Measurement Principles, Units and Types.
- Liquid Head Devices (Manometers).
- Elastic Deformation Elements (Diagrams, Capsules, Bellows).
- Pressure Switches.
- Bourdon Tube Gauges ("C" type, Spiral, Helical, Compound and Duplex).
- Installation of Bourdon Tube Gauges.
- Pressure Calibration Standards (DWT, Venier Manometer and Standard Gauge).
- Calibration Procedures, Errors and Correction.

⇒ **Pneumatic Transmission Systems**

- Pneumatic Transmitter (Force Balance).
- Flapper and Nozzle Mechanism.

- Feedback Bellows and Pneumatic Relay Amplifier.

⇒ **Electronic Transmission Systems**

- Electronic Transmitter (Force Balance).
- Transmission Signal Converters (I to P and P to I).
- Electronic Display Devices.

⇒ **Level Measurement**

- Dipstick and Dip Tapes.
- Sight Glass.
- Hydrostatic Methods (Wet Leg and Dry Leg).
- Purged Dip Pipe Level Measurement Principle.
- Buoyancy Method (Floats and Displacer).
- Capacitor Methods.
- Ultrasonic Methods.
- Load Cells.

⇒ **Flow Measurement**

- Rate and Quantity of Flow.
- Laminar, Transient and Turbulent Flow.
- Quantity Displacement Meters.
- Constant Area, Variable Pressure Devices Constant Head, Variable Area Devices. Square Root Extraction.
- Inferential (Velocity) Flowmeters.
- Installation Practices.

⇒ **Temperature Measurement**

- Temperature Units and Scales.
- Liquid, Gas and Vapour Filled Systems.
- Bimetal Thermometers.

⇒ **Electrical Methods of temperature Measurement**

- Resistance Thermometers.
- The Wheatstone Bridge.
- Thermocouples.
- Reference Junction Compensation.

- Compensating and Extension Cable.
- The Potentiometric Measuring Circuit.

⇒ **Control Valves and Actuators**

- Spring and Diaphragm Actuators.
- Single and Double Port Valves.
- Control Valves Trims and Characteristics.

⇒ **Control Valves Positioners**

- Motion Balance Positioner.
- Forced Balance Positioner.
- Setting Up Valve Positioners.

⇒ **Closed Loop Control**

- The Elements of a Control Loop.
- Process Control Terms.
- Principles or the Feedback Loop Controller Actions.
- Control Loop Stability.

⇒ **Modes of Control**

- On/Off (2-Step) Control.
- Proportional Action.
- Proportional Control.
- Integral Action.
- P+I Control.
- Derivative Action.
- P+I+D Control.

⇒ **Tuning Control Systems**

- Ultimate Sensitivity Method.
- Damped Oscillation Method.
- Reaction Rate Method.

⇒ **Complex Control**

- Cascade Control.
- Ratio Control.