



Training Course :

Heat Transfer and Thermal Design in the Process Industry

Training Course For One Week In

UAE - Dubai - Cityseason 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		Heat Transfer and Thermal Design in the Process Industry				
Code	Period	Language	Start	End	Location	Fees
ME 001	5 Days	Bilingual (Arabic & English)	15/01/2017	19/01/2017	UAE - Dubai - Cityseason Hotel	1750 KD (15% For Individual Registration) & (25% For Group Registration)
			19/02/2017	23/02/2017		
			19/03/2017	23/03/2017		
			30/04/2017	04/05/2017		
			14/05/2017	18/05/2017		
			18/06/2017	22/06/2017		
			16/07/2017	20/07/2017		
			20/08/2017	24/08/2017		
			10/09/2017	14/09/2017		
			15/10/2017	19/10/2017		
			19/11/2017	23/11/2017		
			17/12/2017	21/12/2017		

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

Course Objectives

⇒ Upon completion of this course, participants will be trained in the thermal processes and equipment used in the process industries. The course discusses basic heat transfer principles and how an engineer can use them, in conjunction with the characteristics of the materials and the process to design, specify, and select equipment that will be cost effective and reliable. The examination of existing units to determine whether they will be able to operate at debottleneck conditions is also discussed. The detailed thermal design of shell and tube heat exchangers and heat recovery equipment is also discussed as an optional course module.

Course Content & Outlines

- ⇒ Fundamentals and Correlations
 - Conduction
 - Forced Convection
 - Condensation
 - Natural Convection
 - Boiling
 - Radiation
- ⇒ Basic Principles

- Correlation Accuracy
 - Surface Area Ratio
 - Metal Temperatures (Clean/Fouled, Dew Point, Bubble Point, Corrosion)
 - ⇒ Performance of Heat Exchange Equipment
 - Effective LMTD
 - Clean Versus Fouled
 - Wide/Tight Temperature Approaches
 - Co-Current versus Counter-Current
 - ⇒ Selection of Heat Exchange Equipment
 - Mechanical Design
 - Materials/Cost
 - Temperature Level
 - Pressure Drop
 - Safety/Reliability
 - ⇒ Types of Heat Transfer Equipment
 - Shell and Tube Exchangers
 - Plate Exchangers
 - Double-Pipe Exchangers
 - Fired Heaters
 - Direct Contact Units
 - Scraped Surface Units
 - ⇒ Applications
 - Heat Loss/Gain Vessels/Tanks/Pipes
 - Heat Transfer Fluids
 - ⇒ Shell and Tube Heat Exchanger Design
 - TEMA Types
 - Baffle Types
 - Tubesheet Connections
 - Cleaning Requirements
 - Materials
 - Pressure Drop
 - Correlation Accuracy/Over-design
 - Data Requirements and Checking
 - TEMA Specification Sheet
- Physical Property Data
 - Finned Tube Effects
 - “F” Correction Factor
 - Under-Surface/Over-Surface
 - Temperature Pinch
 - Fouling Factors
 - Fluid Characteristics
 - Heat Duty
 - Pressure Level
 - Cyclic Service
 - Air Cooled Exchangers
 - Spiral Exchangers
 - Vertical Tube Bayonet Exchangers
 - Boilers
 - Agitated Vessels
 - Evaporators
 - Heat Transfer in Process Vessels
 - Cooling Water Systems
 - Mechanical Design/Code Requirements
 - Fluid Allocation
 - Nozzle Sizing
 - Tube Pitch/Type
 - Effective Temperature Difference
 - Vibration
 - Clean/Fouled Performance
 - Service Conditions
 - Design Pressure and Temperature

- Pressure Protection
- Computer Design Tools
- ⇒ Design Methodology
 - Shell-Side Heat Transfer Controlled
 - Shell-Side Pressure Drop Controlled
 - Vibration Controlled
- ⇒ Condensers
 - Effective Temperature Difference
 - Pressure Drop
 - Cross-flow
 - Multi-pass
 - Nozzle Design
- ⇒ Vaporizers
 - Natural Versus Forced Circulation
 - Vacuum/Static Head Effects
 - Stability/Flow Regime
 - Heat Flux
 - Metal Temperature
 - Tube Length/Static Head/Column Cost
 - Kettle Reboilers
- ⇒ Heat Recovery Coils
 - Materials
 - Metal Temperature
 - Pressure Drop
 - Finned Tubes
 - Control
- ⇒ Specifications of Vendor-Designed Equipment
 - Heat Duty
 - Design Temperature and Pressure
 - Pressure Drop
 - Nozzle Locations
 - Gasket Materials
 - Corrosion Allowance
- ⇒ Checking Performance/Debottlenecking (Fouling, Vibration, Leakage, Corrosion, Pressure Drop)
 - Transient Conditions/Thermal Expansion/Start-up/Shut-down
 - Piping Layout
 - Tube-Side Heat Transfer Controlled
 - Tube-Side Pressure Drop Controlled
 - Temperature Pinch Controlled
 - Vacuum Service Issues
 - Low Pressure Drop Designs
 - Single Pass Vertical/Horizontal
 - Knock-Back
 - Inerts/Venting
 - Vertical and Horizontal
 - Line Sizing/Return Nozzle Sizing
 - Fouling/Tube Velocity
 - Tube Pitch
 - Layout
 - Enhanced Surface Tubes
 - Entrainment/Disengagement Space
 - Mechanical Design
 - Over-Surface Effects
 - Tube Pitch
 - Radiation Effects
 - Design
 - Temperature Profile
 - Description of Duty
 - Fouling
 - Materials
 - Fluids
 - Layout Requirements