

**Training Title**

**PIPING SYSTEM & PROCESS EQUIPMENT**

**Training Duration**

5 days

**Training Venue and Dates**

REF	Piping System & Process				
PE030	Equipment	5	24-28 March, 2019	\$4250	Dubai, UAE

In any of the 5 star hotel. Exact venue will be informed once finalized.

**Training Fees**

4250 US\$ per participant. Fees Includes Course Materials/Handouts, Tea/ Coffee, refreshments, International Buffet Lunch.

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

**TRAINING OVERVIEW**

**TRAINING DESCRIPTION**

Process plants, such as refineries and petrochemical plants, are complex facilities consisting of equipment, piping systems, instruments, electrical systems, electronics, computers, and control systems. The design, engineering and construction of process plants involve a multidisciplinary team effort. Plant layout and design of piping systems constitutes a major part of the design and engineering effort. The goal is to design safe and dependable processing facilities in a cost effective manner. Process Plant Layout covers the terminology and concepts needed for equipment layout within the process plant. This includes equipment placement, spacing and orientation. It also includes pipe routing to key equipment nozzles considering operations and maintenance.

The objective of this course is to cover the fundamental principles and concepts used in process plant layout and piping design. Upon completion of this course the delegates will have a clear understanding of the design and engineering principles used in plant layout and piping design.

**WHO SHOULD ATTEND?**

Managers, engineers, operators, supervisors, inspectors, equipment suppliers, or those who wish to be familiar with plant systems.

**TRAINING METHODOLOGY:**

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

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- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

### COURSE CONTENTS

#### ▪ Considerations of Plant Design & Layout

- Feasibility Study
- Hazardous and Toxic Areas
- Safety Considerations
- Aesthetic Considerations
- Process flow diagrams (PFDs)
- Economic Evaluation
- Site Considerations
- External Influences

#### ▪ Layout Specifications

- Site Selection Considerations
  - \* Future Extensions
  - \* Contour of the Ground
  - \* Prevailing Wind
  - \* External Factors
- Plant Layout Considerations
  - \* Access Arrangements
  - \* Hazardous Area Classification
  - \* Operability
  - \* Elevations
  - \* Clearances
  - \* Paving
  - \* Insulation
- Layout Review

#### ▪ Layout of Static Equipment in Process Plants

- Columns and Drums (Vertical/Horizontal)
- Exchangers
- Furnaces and Fired Equipment
- Storage Tanks
- Access to Valves and Instruments
- Relief Valve Systems
- Maintenance and Equipment Handling

#### ▪ Piping Layout

- General

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- Information Required
- Evaluation of Information
- Line Identification
- Piperack Width
- Piperack Elevation
- Line Location in Piperacks
- Piping Economy in Piperack and its Influence on Plant Layout
- Piperack General Arrangement Checklist
- Pipetracks
- Trenched Piping
- Underground Piping

▪ Pump Layout

- General
- Centrifugal Pumps
- Reciprocating Pumps
- Rotary Pumps
- Pump Drivers
- Pump Harness Piping

▪ Compressor Layout

- Introduction
- Reciprocating Compressors
- Centrifugal Compressors
- Drives

**Note:**

**Pre & Post Tests will be conducted**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**

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