PIPING SYSTEM & PROCESS EQUIPMENT

TRAINIT ACADEMY

PCE156
Process and Chemical Engineering

COURSE TITLE

PIPING SYSTEM & PROCESS EQUIPMENT

COURSE DATE/ VENUE

10 – 14 November 2019

Istanbul, Turkey

COURSE REFERENCE

PCE156

COURSE DURATION

05 Days

DISCIPLINE

Process and Chemical Engineering

COURSE INTRODUCTION

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.

COURSE OBJECTIVE

Upon successful completion of this course, the delegates will be able to:

- ✓ Understand the total integrity of process plant piping systems throughout their useful life
- ✓ Ensure the total structural integrity of process plant piping systems throughout their useful life
- ✓ Achieve higher levels of maintenance excellence in refineries and other process plants
- ✓ Examine and apply the maintenance and inspection requirements of API 570 to process plant piping systems
- ✓ Perform engineering audits of designs and procedures.

COURSE AUDIENCE

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

COURSE CONTENT

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
- Information Required
- Evaluation of Information
- Line Identification
- Pipe rack Width
- Pipe rack Elevation

- Line Location in Pipe racks
- Piping Economy in Pipe rack and its Influence on Plant Layout
- Pipe rack General Arrangement Checklist
- Pipe-tracks
- 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

COURSE CERTIFICATE

TRAINIT ACADEMY will award an internationally recognized certificate(s) for each delegate on completion of training.

COURSE FEES

$5,400 per Delegate. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. 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.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions