

**PROCESS PLANT LAYOUT & PIPING DESIGN**



## **Institute of Piping Engineering & Building Services**

### **OVERVIEW – Process Plant Layout & Piping Design.**

This is a fast-paced program designed to present all major topics relative to the design and operation of Process Plant Layout & Piping Design. The program consists of 45 days of Full time Instruction including concept theory, problem solving, system design, CAD drafting and exposure to PDS & PDMS Software's like AUTOPLANT.

### **WHAT YOU SHOULD BRING**

Course participants should bring an open mind, a thirst for knowledge, a scientific calculator, sketch pad, pen and long book.

### **Description**

This certificate program introduces the full range of Process Engineering & Piping Design from Fundamental of Plant Layout, Design, Process Equipments, Plot Plans, P & ID's, Piping Fundamentals, and Components & Piping Drafting & Routing. Each topic is presented so as to demonstrate the "real world" impact of design decisions on resulting system performance. Numerous examples of actual designs are presented. (See the "Course Outline" section for details of topics.)

### **What You Will Learn**

Design, Installation & Maintenance of Process Plants inclusive of Chemical Process Industries Petroleum & Petrochemical industry, Refinery, Oil & Gas sector, Atomic and Nuclear power stations, Marine, Pharmaceutical industry, Power Plant, & Cryogenic Plants.

### **WHO SHOULD ATTEND**

- Mechanical/Electrical/Chemical/Petroleum Engineers and Students
- Technicians
- Draftsmen

### **Training Features**

- Excellent Material Provided (Design Manual, Design Charts)
- Industry Leading Software's Used in Training.
- Individual Attention & Placement Guidance.
- Hundreds of Students placed in India, Middle East, Far East & African Countries.

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## **Process Plant Layout & Piping Design**

### **Introduction to Process Plant Layout & Piping Design**

Definition, Basics of Plant Layout Design and Fundamentals. Plant Layout Specifications.

### **Equipment Specifications & Datasheets**

Standard Specifications & Data Sheets for Process Equipments. (Vessels, Pumps, Heat Exchangers).

### **Equipment General Arrangement**

Principles of Plant Layout, Access for Operator and Maintenance, Equipment-arrangement-elevation, Roads, Clearance, Platforms, ladders, stairs.

### **Process Flow Diagrams**

Purpose of PFD's, Symbolism & Conventions for PFD's

### **Process Plant Equipments**

Process equipment - Reactors, Towers, Exchangers, Pressure Vessels, Drums, Furnaces, Process Liquid Storage Tanks, Mechanical equipment - Pumps, Compressors, Turbines

### **Plant Layout & Plot Plans**

Plot Plans, Equipment Drawings, Nozzle Specifications

### **Process & Instrumentation Diagrams (P&ID's)**

Purpose of P&ID's, Stages of Development of P & ID's, Symbolism & Conventions , Process & Instrument Drawings, Process Equipment Relationships, Process Industry Practices.

### **Piping Fundamentals**

Introduction, Pipe Dimensions, Pipe Data, Materials, Codes & Standards, Fabrication & Installation, Piping Joints. Common Abbreviations. Design Documents, Design Bases.

### **Piping System Components**

Piping Layout , Piping Fittings - elbows, tees, reducers, end caps, Flanges, Selection & Application of Valves, Pipe Racks, Pipe Supports, Anchors, & Guides, Thermal Insulation,

**Pipe Routing & Drafting** - Piping Isometrics, Plans, 3D Representations

**Stress Analysis** - Piping Stress. Causes. Impacts. Layout solutions for weight, thermal and other stresses.

**Fluid Flow** – Fluid & Flow Classification, Governing Equations, Energy Losses, Compressible Flow, Incompressible Flow, Unsteady Flow.