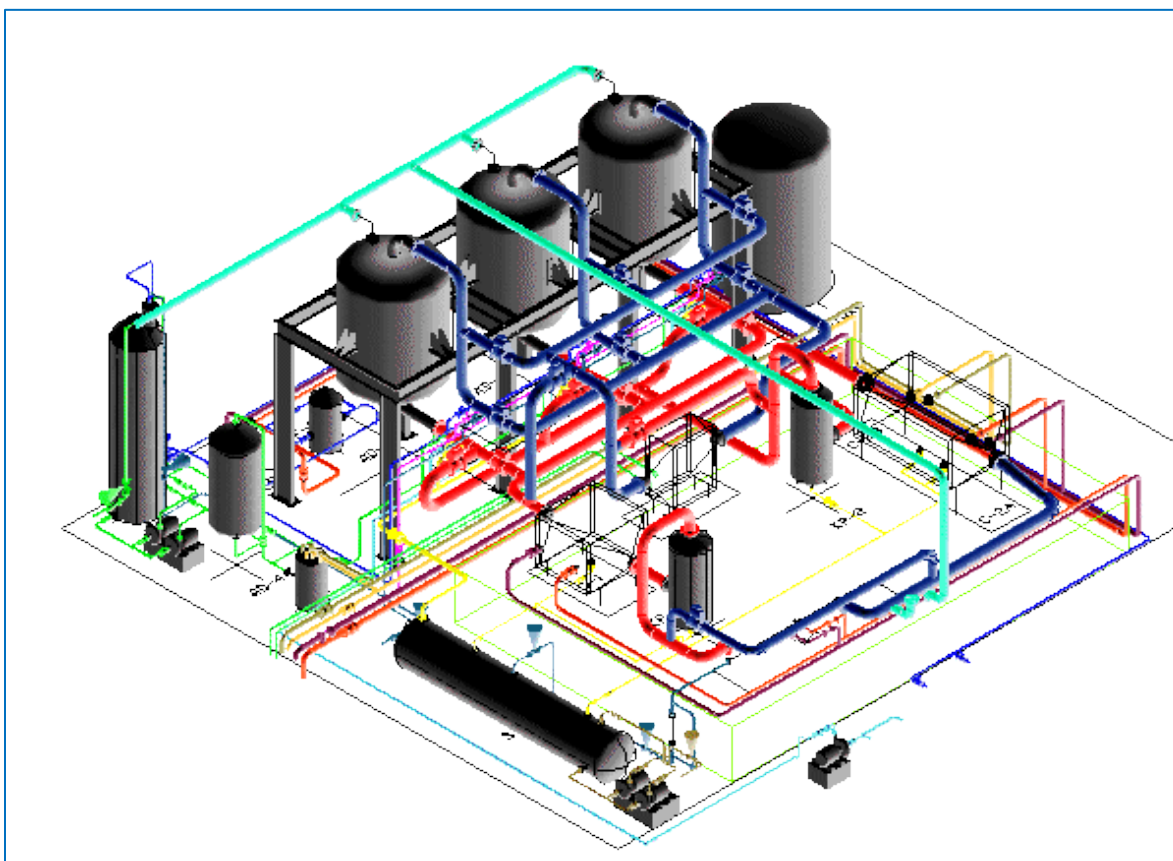




GE033-4D: P&IDs, Pipe Sizing, Piping Layouts and Isometrics

Training Description:

Detail engineering in piping projects consists of the engineering, design, detail and layout of process and utility equipment, piping and instrumentation. This training course provides participants with the background required to design, engineer and complete piping assignments.

This intensive training course should be of interest to people employed in any area that piping is present (Refinery, Chemical, Power, Pulp and Paper, Utility etc.) The training course introduces engineers, designers and construction personnel to the various procedures involved in the development and engineering of Piping and Instrumentation Diagrams (P&ID's), Equipment Plot Plans, Piping Arrangements, and Fabrication Drawings.

Traditionally, there has been little formal training in this area and design decisions often have to be made based on practical considerations without formulae or code reinforcement. Completing piping drawings take up the majority of man-hours in the design of a process plant.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Describe pipe sizing and piping layouts and Isometrics
- ✓ Explain pressure drop calculations
- ✓ Describe the process of pump and equipment sizing and selection
- ✓ Describe the preparation of equipment specifications and drawings
- ✓ Identify piping specifications
- ✓ Explain the process of instrumentation and process control
- ✓ Describe the process of piping component familiarization, including valves and fittings, piping hangers and supports

Training Designed for:

This course is intended for all Piping Engineering and Design Personnel wishing to expand their knowledge of piping and instrumentation. Engineers, Designers, CAD Operators and Draftspersons in the piping field.

Practicing Engineers and Designers who may have experience in related disciplines and wish to expand their knowledge of the piping area as well as the Piping Fabricators, Contractors and Suppliers wishing to understand the relationship of manufacture and fabrication to the design, layout and construction of piping systems.

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Special Requirements:

- ✓ A series of workshops where participants have an opportunity to produce a P&ID and a number of Piping Isometrics c/w Bill of Material are part of this course. Therefore, participants are required to bring the following equipment:
 - Scale: 3/8" = 1ft scale
 - Circle template
 - Calculator
 - Drafting pencil and eraser

This training course is available upon request in English or Arabic, virtual online live or face to face public/inhouse. Content, location and duration can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

FOUR DAYS:

- ❖ Pre-Assessment
- ❖ Introduction
- ❖ Piping Terminology
 - Process flow diagram, development of piping and instrumentation diagram (P&ID), and piping and instrumentation functions
- ❖ Equipment Function
 - Sizing and selection of pumps, exchangers, pressure vessels, and pump calculations
- ❖ Pipe Sizing
 - Pressure drop calculations, friction loss, water, viscosity, air, gases, and laminar flow
- ❖ Piping Components
 - Isometric and orthographic drawings, specifications and bills of material for piping drawings, valve and piping fitting function, and process and utility piping
- ❖ Instrumentation
 - Instrumentation specifications
 - Pressure, level, temperature and flow, and process control
- ❖ Pipe Supports and Hangers
 - Selection and location, anchors, guides, and restraints
- ❖ Steam and Condensate Piping
 - Steam traps, condensate collection systems, and drip legs
- ❖ Pump Piping
 - Forces and moments on pump nozzles, American Petroleum Standard (API) 610, commissioning, and preventative maintenance
- ❖ Plot Plans and Equipment Layout
 - Interpreting plot plans and equipment layouts
- ❖ Piping Stress Analysis Overview
 - Preliminary stress analysis
 - Applicable codes and standards, methodology, static analysis, and using stress analysis programs
- ❖ Workshop – Problem sets
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Fees:

As per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

For training registrations or in-house enquiries, please contact:

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