Training - Process Engineering - Equipment Sizing

PIDE-EN-P | Face-to-face only | 5 days

This course provides an overview of Oil & Gas projects engineering studies, from conceptual design to detail drawing

Level
Skilled

Public
Process engineers

Objectives
Attendees will be able to implement the following skills:

- List the various aspects of project engineering to be applied in real cases
- Be able to work with PID schemes

Pedagogical & technical resources

- Lectures with exercises
- Project by team (2 or 3 students): conception of a PID scheme from a PFD
- Specific and detailed documentation, industrial examples

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PROJECT DEFINITION — 0.5 day

Definition of the different type of projects.
Planning, description of the different project steps.
Organization: task force or conventional.
Departments description and role: purchasing, cost control, planning, engineering, construction...
Relation between client and contractor: progress report, change order...

ENGINEERING DIAGRAMS (PID'S) — 2 days

Process flow schemes: purpose, available information.
General rules for the PID's conception:

- PID's importance during the contract.
- Milestones: PID's review...
- Potential development, "clever PID's".

Study of the PID's by splitting them in elementary parts (each part is made of one or several equipment): fractionation column, furnace, reactors, compressors...; piping; regulation, instrumentation will be studied in each part.
Safety elements: safety valves, valve action per air failure.
Utilities, start-up and shutdown piping: steam/condensate networks, hot oil, drain systems.
Other auxiliary piping: off-spec., start-up and shutdown piping.

ENGINEERING RULES & STANDARDS — 2 days

Units and conversion factors.
Hydrocarbon properties.
Equipment design rules: rotating machines (compressors, pumps...); thermal equipment (furnaces, heat exchangers); storage tanks; pressure vessels.
Piping design as per the fluid inside: gas, subcooled liquid, boiling liquid...
Instrumentation: control valves, on-off valves, flow meters, indicators...

RELIEF SYSTEM DESIGN BASIS — 0.5 day

Definition of risks.
Flare stack and flare main header and sub-headers design.
Safety valves design.
Emergency shut down diagram.
Depressurization.

PROJECT (TREATED ALL ALONG THE COURSE)

Conception of a PID from a process flow scheme. Application of rules for sizing piping and pieces of equipment.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com