Certified Process Design Professional/Expert

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Overview

Velosi is conducting online training for Certified Process Design Professional/Expert (CPDP/CPDE. This certification is structured in two levels, which will test the fundamentals of Process Design Engineering.

Learning Outcomes

This 5-day course will provide the participants with the skills and knowledge of current trends in process layout and process design calculations. It involves the application of principles learnt in process engineering courses such as Mass and Heat Transfer, Fluid Mechanics, Selection and Sizing of Process Equipment for a given process.

Designing process plants is a complex and demanding process. The design of plant layout is one of the most important tasks before plant construction. A good plant layout cannot only reduce capital cost, but can also help to improve the safety of the plant and reduce its environmental impact. Additionally, fast and easy access to the parts of the plant and the equipment is essential for effective operation and maintenance, which means higher plant availability and longer time between failures. This course will familiarize participants with all aspects of process plant major equipment and piping systems.

This course provides the participant with skills and knowledge of current trends in process layout and process design. It involves the application of principles learnt in other process engineering courses like; Mass and Heat Transfer, Fluid Mechanics, Selecting and Sizing suitable equipment for a given process.

This Course Covers The Following Subjects:

- Fundamentals of Material & Energy Balances
- Flow-Sheeting
- Design Information and Data
- Pressure Drop Calculations in Piping
- Two- Phase / Three- Phase Separator Design
- Heater-Treater Sizing
- Heat Exchanger Design Calculations

- Heater Design Calculations
- Compressor Sizing
- Pump Sizing
- Storage Tank Sizing
- Process Safety and Pressure-Relieving Devices

Who should attend?

Process, Design, Safety, Operations, Maintenance, Integrity, Plant Engineers, Managers and Professionals.

Eligibility

Years of Exp.	High School Diploma	Bachelor Degree - Unrelated Field	Bachelor Degree - Related Field	Master Degree - Unrelated Field	Master Degree - Related Field
Professional	6 years exp.	4 years exp.	2 years exp.	1 years exp.	0 years exp.
Expert	9 years exp.	7 years exp.	5 years exp.	4 years exp.	3 years exp.

Certificate

Upon successful completion of the training and examination, participants will be awarded '**Certified Process Design Professional/Expert'** certificate depending on years of experience.

Course Outline

Day 1:

- Development of Process Data
- Process Design Tasks & Sequence

- Process Calculations Methods
    - Empirical Procedure
    - Rigorous Procedure
- Process Design Simulation Techniques
    - Commercial Packages
    - Equipment Software
    - Process Data Packages
- Data Compilation and Presentation
    - Process Flow Diagram
    - Equipment Data Sheets
    - Accuracy and Significance

Day 2:

- Equipment Sizing, Selection and Design Process Equipment Categories:
    - Proprietary Type Equipment
    - Non-Proprietary Equipment
    - Required vs. Calculated Data
- Pumps:
    - Categories & Types – Reciprocating & Centrifugal
    - Performance Characteristics – Curves, System/CV
    - Key Design Parameters – Capacity Factors, Properties, Head, NPSH, Efficiency, Horsepower
    - Calculation Method/Typical Format and Examples
    - Pump Selection Guidelines

Day 3:

- Compressors:
    - Categories and Types – Reciprocating & Centrifugal
    - Compression Process – Adiabatic, Isothermal & Polytropic
    - Characteristics & Terminologies – Clearance, Surge, Stonewall, Speed, Turndown, etc.
    - Key Design Parameters – Capacity, Properties, Compression Ratio, Head, Temperature Rise,

- Efficiencies, Multi-staging
- Compressor Control Methods
- Calculation Method/Typical Format and Examples
- Selection Guidelines – Technical and Economic Factors

Day 4:

- Heat Exchangers
  - Types – Shell-and-Tube, Double-Pipe, Plate, Other
  - Shell-and-Tube Construction – TEMA Classification
  - Heat Transfer Relation – Heat Transfer Coefficients, Mean Temperature Difference, Correction Factors, etc.
  - Key Design Considerations – Fluid Routing, Pressure, Temperature, Viscosity, Fouling
  - Fouling Factors, Variables and Prevention
  - Process Applications – No Phase Change & Phase Change
  - Reboilers – Types, Feed System, Calculation Method
  - Calculation Methods – Detailed and Short-Cut with Example
  - Rating Existing Exchangers with Example
  - Selection Guidelines

Day 5:

- Process Vessels
  - Types and Functions – Separation, Accumulation, Settling
  - Design Considerations – Sizing, Vapor Velocity, Liquid Residence, Entrainment, Internals Connections
  - Vessel Calculation Method and Examples
- Mechanical & Safety Aspects
  - Codes, Standards and Specifications
  - Materials of Construction – Overview
  - Safety in Design – Equipment Spacing

Other Courses We Offer:

- Safety Certification Exam Course
  - CFPS
  - CIH
  - ASP/CSP CFSP/CFSE
- Oil & Gas/Energy Industry Training
  - Asset Integrity Management
  - Pipeline Integrity Management
  - Wellhead Integrity Management
  - Structural Integrity Management
  - Certified PHA HAZOP Leader
  - SIL Selection and Verification
  - Process Design Training
  - API Trainings.
- Maintenance & Reliability Certification Exam Courses
  - CMRP
  - CMRT
- After this Standardized Test Training
  - Quantitative Risk Assessment
- NEBOSH courses
- Firefighting Training
- H2S & BA Training
- First Aid Courses/Training
- HSE Courses/Training
- IOSH/OSHA Certified Courses IADC Certified Courses
- ISO Training
- Security and Safety Training
- Environment Protection Training
- Standardized Test Training
- Administrative and Management Skills Training
- High-field (HABC) Accredited Trainings

GET IN TOUCH WITH US

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