

PROCESS DESIGN ENGINEERING

9 Days Fast Track - Batches (60 hours)

A robust course for Chemical Engineers with sufficient depth in a specific area of **Process Design Engineering** to solve complex real world engineering problem and to understand engineering trade-off and contribute effectively in multi disciplinary project with informed decision making.



SMARTBRAINS ENGINEERS TECHNOLOGIST PVT. LTD.

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About the Program?

The objective of this course is to provide the candidates the Detail knowledge and skills in Process Design discipline to facilitate faster learning curves while on the job.

This course designed to provide basic knowledge and skills in this discipline of Process Engineering for Oil & Gas sector. This course will cover the fundamental principles and concepts used in process plant layout and process design & Detailing. Upon completion of this course, students will have a clear understanding of the design principles used in Process System Design for Oil & Gas Energy Sector.

The objective of this course is to provide delegates the Detail knowledge and skills into Design, Engineering, Construction, Commissioning operation & Maintenance in the field of Process Engineering for Oil & Energy Sector.

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Learning Objective

- Introduction to oil and gas industry
- Engineering Procurement and Construction Contracts
- Tender & Procurement Process
- Introduction to Process Design Engineering
- Process Engineering Application
- Process Calculation
- Engineering Flow Diagram
- Pumps and Pumping Systems
- Compressors
- Process vessels
- Mechanical Design
- Fractionators
- Reactors
- Heat Exchanger
- Fired Heater and Heat Recovery
- Ancillary Equipment
- Pressure Relief
- Control valve
- Process Design Specification
- Process Simulation

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Methodology

SmartBrains Engineers Technologist Pvt. Ltd. uses mixes of techniques aligned to a unique pedagogy which is Goal-Centric & Action Oriented. Demonstrates Case Studies using the statistical tools, exercises & brainstorming using Adaptive Probing Methodology along with classroom theories and live Project exposure. Delivered by Senior Industry Professionals having extensive experience in their core domain.

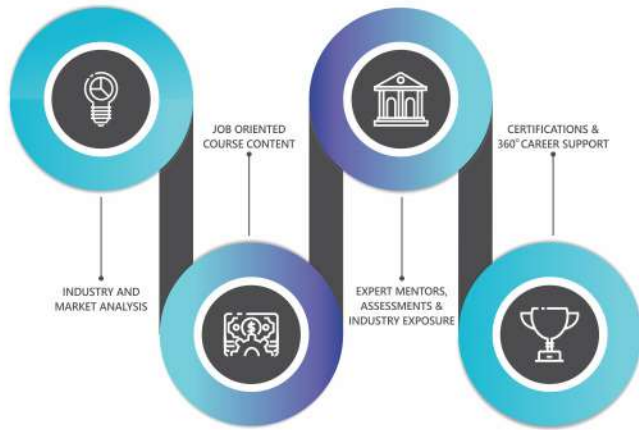
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Career Benefits

- **Become Eligible** for Design & Engineering jobs in to electrical Engineering demanding background.
- Open doors to **Job Opportunities Abroad** demanding specialization.
- Fill the void of thousands of untapped **High-Paying Jobs** in Design Engineering with **Talent Shortage**.
- **Get Promoted** in your current profile with most in-demand skill.
- Distinguish your profile from peers during **Job Interviews**.
- Earn a **Rewarding Global Certification** Certified by (National Skill Development Corporation of India (NSDC), Under the Ministry of Skill Development and Entrepreneurship (Govt. of India) Training & Certification Program.
- **Improve your CV & LinkedIn Profile** with professional development.



- The program is a global standard offering that uses mixes of techniques aligned to a unique pedagogy which is Goal-Centric & Action Oriented.
- Includes classroom theory, learning videos, demonstration of statistical tools like Advanced Excel Programs and Other Software tools.
- Real-project case studies using the statistical tools demonstrated, exercises and brainstorming using adaptive probing methodology.



Program Highlights



Assessment



Byte Size Learning



Assignments



Projects



Industry Interaction



360° Career Support



Case Study



Discussion Forum

SmartBrains engineers and technologist Pvt. Ltd. has received recognition, endorsement and affiliation from National Skill Development Corporation of India (NSDC), a Public Private Partnership (PPP), Under the Ministry of Skill Development and Entrepreneurship (Govt. of India) and various Skill Sector Councils as an authorized training partner under various trades. SmartBrains is authorized to provide skill based training for engineering/non-engineering candidates as per their interest. SmartBrains as a training institute will provide complete practical knowledge based skill training to the candidates and NSDC/Skill Councils will be responsible for providing recognition & certification to the candidates. The National Skill Development Corporation (NSDC) is one of its kind, Public Private Partnership Under the Ministry of Skill Development and Entrepreneurship (Govt. of India) aims to promote skill development by catalyzing creation of large, quality and for-profit vocational institutions. Further, the organisation provides funding to build scalable and profitable vocational training initiatives. Its mandate is also to enable support system which focuses on quality assurance, information systems and train the trainer academies either directly or through partnerships. NSDC acts as a catalyst in skill development by providing funding to enterprises, companies and organizations that provide skill training. It also develops appropriate models to enhance, support and coordinate private sector initiatives. The differentiated focus on 21 sectors under NSDC's purview and its understanding of their viability will make every sector attractive to private investment.



MODE/DURATION

- Fast Track - 60 Hours
- Weekend - 80 Hours
- Online - 80 Hours

LEARNING BASED OUTCOMES

Get hands-on experience in applying design tools & techniques to real engineering problems and understand Design, Engineering, Construction, O & M etc. Thus, become a Technology Driven Engineering Professional.

TRAINER

Delivered by Senior Industry Professionals having extensive experience of Design & Engineering in diverse domains & industries. These practitioners are also Empanelled as subject matter experts with SmartBrains Engineers & Technologist Pvt. Ltd.

CONTENT

Get 24 x 7 access to SmartBrains LMS platform (Online/Offline) with Abundant Content on Process Engineering including Courseware (PPT / PDF), data, case studies, articles, books, videos, examples, presentations, resource library & related more.

JOB ORIENTED OUTCOMES

Fill the Void of Talent Shortage in Design Engineering by becoming eligible for thousands of High Paying Jobs in India & Abroad with an upgraded profile through this skill & certification. Additionally, Get Promoted from your current position with added skill set.

Become eligible for Process Design Engineering job demanding background

Explore + Analyse + Solve Engineering Problems using Analytics Tools & Design Software

Fill the void of thousands of untapped High-Paying Jobs in Process Design Engineering

Helps understand Engineering Procurement and construction (EPC) contracts.

Distinguish your professional profile from peer during Job Interviews and stand out of the box

Understand 'What' & 'How' aspects of Process Design Engineering

Perform exercises by accessing our labs and simulation software

Improve your Curriculum Vitae and your social job profile with professional development

Support your startup or your professional life with high hike

Build a startup in one of the most rewarding fields of Process Design Engineering



1. Introduction To Oil And Gas Industry & Epc Contracts

- General Industry overview and basic concepts
- Oil and gas prospecting(exploration)
- Oil and gas production facilities
- What is an EPC contract
- The tender & procurement process
- The scope of works

2. Introduction to Process Engineering

- Process Engineering
- Refining Overview
- Hydrocarbon Process Examples
- Typical Refinery Block Diagram
- Typical Refinery Processes
- Process Engineering
- Nature of Design
- Process Engineering Applications
- Process Equipment
- Resources/Tools
- Process Work Flow
- Engineering Flow Diagrams
 - Block Flow Diagram
 - PFD
 - P&ID
 - Process Control Diagram
 - System Distribution Diagram
 - Plot Plan and Elevation Drawings

3. Process Sizing Calculations for Plant Design

- Line Sizing (Single Phase)
- Line Sizing (Two Phase)
- Centrifugal Pump Hydraulics

4. Process Equipment Sizing Calculations for Plant Design

- Shell & Tube Heat Exchanger
- Packed Columns
- Tray Columns
- Gas-Liquid (Two Phase) Separators
- Liquid-Liquid (Two Phase) Separators

5. Process Data Sheets Preparation

- Static Equipments
- Utility Packages

6. Equipment for Process Designing

- Fluid Flow and Heat Transfer
 - Fluid Flow in Piping
 - Line Sizing Criteria
 - Heat Transfer
 - Radiation
- Pumps and Pumping Systems
 - Types of Pumps
 - Performance Characteristics Curves, System Hydraulics, Affinity Laws, Capacity, Turndown, Sparing
 - Key Design Parameters - Capacity Factors, Properties, Head, NPSH, Horsepower
- Compressors
 - Compressor Categories and Types
 - Compression Process - Adiabatic, Isothermal, Polytropic
 - Compressor Characteristics Performance, Terminology,

- System Curves
 - Requirements, Affinity Laws
- Control Valves
 - Flow Characteristics - Vortices, Separation
 - Pressure to Flow Relationships
 - Choked Flow Conditions (Critical Flow)
 - Cavitation and Flashing
- Process Vessels
 - Mechanical Design
 - Simple Calculations
 - Types and Functions
 - Reactors
- Heat Ex-changers
 - Basic Principles of Heat Exchanger Design

7. Preparation of Major Process Documents

- Process Design Basis
- Fluid List
- Line List/Tie-in-point List
- Equipment List with Short Specification
- Catalyst & Chemicals Summary
- Utility Consumption Summary
- Flare Load Summary
- Effluent Summary

8. Process Simulation

- Butane, LPC column simulation
- Light Nephtha, CO2 Absorber
- Striper Design Hook-ups/isometric diagram

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Our Process



Online Application



Counseling & Course Overview



Enrollment & Batch Allotment



Execution, Certification & Career Support

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Career Support



Resume Building



Interview Preparation



Placement Assistant



Prospect Recruiters



Course Certificates

SmartBrains is associated with The National Skill Development Corporation (NSDC) as the Training and Certification partner for various job oriented training programs across various sectors including Oil & Gas, Power, Renewable Energy, Hydrocarbon, IT & ITs, Electronics, Telecom, Agriculture, Life science etc. offering assessment based Training & certifications for a gamut of job profile.

Who should join?

- Working professionals in **Domains:** Site Engineering, Construction & Commissioning operation & Maintenance, Technicians in Process Engineering Field.
- Students (**Chemical Engineering, Diploma in Chemical Engineering**) who want to develop their career in Design Engineering.



Global Certification

For facilitating corporation among government, Industry & academia to validate skill-sets & respective domain knowledge, SmartBrains offers various Global Certification. It helps in employability, Improving C.V's, Professional development & setting-up Start-ups or business.

SmartBrains is knowledge based multi-disciplinary organization with the work scope of whole life cycle for Engineering Consulting, Technology Services, Human resource outsourcing, Skill Development and Vocational Training Company, committed towards bringing an entire range of services for various sectors into most of business functions. Organization founded in 1998, combine deep industry experience, technical expertise and a global delivery model to create value-based solutions to fulfill industries requirements, success has been built upon the unstinted support and relationships with its partners and the patronage of its clients from across the Globe. SmartBrains has received recognition, endorsement and affiliation from National Skill Development Corporation of India (NSDC), a Public Private Partnership (PPP) , Under the Ministry of Skill Development and Entrepreneurship (Govt. of India Enterprises) & various Skill Sector Councils as an authorized training partner under various trades.

SmartBrains is the global market leader in providing high-level training services to the Oil and Gas sector, Petrochemical, Refinery, LNG, Power Plants, Fiscal, Contracts, Strategy, Process Engineering, Piping Engineering, Electrical Engineering, Instrumentation Design, Plant Equipments, Civil and Structural Engineering, HVAC, Project Management, HSE, Financial and Risk Management. Operating nation wise over the last 8 years, our courses are widely acknowledged within the energy community for quality and up-to-date information. Our success and distinguished reputation is down to our commitment to the industry, a high-level of expertise, sector knowledge, cultural diversity and experience that comes from organizing many courses.

Our other Chemical Engineering Courses

- Process Safety Engineering
- Petroleum Engineering
- Heat Exchanger
- Cooling Tower : Design and Operation
- Drawing & Documentation for Process Engineering
- Oil & Gas Production Process
- Instrumentation & Device Bolier Control System
- Hazops for for Process Engineers & Technicians

Our Popular Courses

- Electrical Design Engineering
- Piping Design Engineering
- Instrumentation Design Engineering
- Civil & Structural Design Engineering
- HVAC Design Engineering
- Renewable Energy : Engineering & Design
- Power Plant Engineering
- Industrial Automation

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