

## Civil & Structural Design Engineering



### What You Will Learn...

- ▶ Introduction to industry and industrial systems e.g. Refinery, Petrochemical, Chemical, Power, Energy, Pharmaceutical etc.
- ▶ Role of civil engineers in various fields.
- ▶ Inputs from various departments and output.
- ▶ Concept of Analysis and Loading Calculations.
- ▶ Concrete Structure Design with relevant codes & standards.
- ▶ Steel structure design with relevant codes & standards.
- ▶ Equipment supporting structures and foundations.
- ▶ Pipe Racks and Sleepers.
- ▶ General Civil Works - Roads, Drains, CRWS (Contaminated Rain Water Sewer), OWS (Oily Water Sewer), Paving, Dyke wall, Tank Farm Area, Boundary wall, fence, gate, Local support and platforms.
- ▶ Special Facilities - Cooling Tower, Flare Stack, Chimney.
- ▶ Computer Aided Analysis and Design.

**SmartBrains** Oil and Energy Institute provides premium training courses for energy industry executives and fresh engineering graduates. Our success and distinguished reputation is thanks to our commitment to provide first-class programmes to our clients. Combining leading professionals from across the industry as lecturers and an interactive, practical format, the lessons learnt in a SmartBrains for Energy course are directly transferable back to the work place.

## Our Strategic Objectives

To be recognized by industry and employers as a highly reputable training organization. Provide dynamic leadership, sound management and excellence in training. Continue to improve our services through quality management processes. Invest in and value our people through professional development activities. Grow our business through innovation and to continue to be financially secure. Be influential in the economic development of the industries we serve nation wise

## Our Mission

“To provide quality training and assessment services and to prepare our students for a fulfilling professional career in their chosen industry. We are committed to upholding our values of providing excellence in training”

# Course STRUCTURE



“I was not very much sure to join the course but once I joined here in Smartbrins I felt it was the right decision. I got very good trainig experience and placement sevice”

**R.S. Shiva Kumar**  
Unique Power Systems, Hyderabad

### Basics of Structural Engineering

- Design of RCC Beams, Columns and Slabs
- Overhead Tank Design
- Ductile Detailing
- Concrete Chimneys
- Staircase Design
- Steel Beam & Column Design
- Plate Girder
- Connection Design
- Base Plate Design
- Portal Frames and Bracing Design
- Portal Frames and Bracing Design
- Storm Water Drains
- Soil Mechanics
- Footing Raft Design
- Pile Foundations
- Equipment Foundation Under Vibrating Type
- Underground Water Tanks

### Analysis & Design of Structures

- Coordinate Systems
- Type of Structures
- Methods of Model Creation
- Sequence of Input File
- General Commands
- Joint Coordinates Specification
- Member, Element Incidences Specification
- Group Definition
- Member, Element Property Specification
- Load Combination, Analysis Specification

### Steel Frame Connection

- Setup Phase I (Job Options)
- Modeling Phase I (Beams And Columns)
- Modeling Tools
- Modeling Phase II
- Connections
- Material Operations
- Setup Phase II
- Drawing Editor
- Parametric Modeling

## 2D & 3D Modeling Structures

- Create Project, Model & Drawing File
- Copy, Delete & Open Model
- Frame Work Plus Manager
- Attach & Detach Model
- Preference Editor, Section Library
- Compress Frame Work Plus Database
- Verify Model
- Select Filter Setting
- Member Attributes, Orientation
- Create, Set, List, Drop, Modify View
- Freeze View & Update Frozen, Regenerate
- Place Linear Members
- Place 3D Solids
- Modify, Manipulate, Cutbacks
- Linear Material Report
- Review & Locate Elements
- Create User Section Table

## 3D Structural Design

- Working with Members, Splitting Members
- Importing and Exporting Structure
- Working with Slabs, Cutting Openings
- Managing Equipment Foundations
- Sketching in 3-D

## Plant Design Management System (PDMS)

- PDMS overview
- Various Modules

## Equipment Modeling

- Creating Equipment by using primitives
- Creating Equipments by using PDMS standards catalogue.
- Creating Obstructions
- Manipulation of primitives & equipments
- Understanding parameters & attributes
- DB Utility

## Draft

### Final output of Plant layout

- GA-Drawing creation in 2D
- Creation of sectional views
- Dimensioning, Labeling
- Export the drawing to AutoCAD
- Reflecting the design changes in draft
- Commands in draft

## Structural Module

- Structures- As per Equipment layout & piping layout
- **Beams and columns**
- Create beams and columns
- Extend beams and columns
- Creating Bracings
- Generating the reports
- Structural commands (All Structural commands are covered).

## Panels and plates

- Creating panels and plate
- Cutting panels and plate
- Splitting of panels and plate
- Penetration of panels and plates

## Floors

- Creations of floors

## ASL Modeler

- Creation of platforms
- Creation of ladders
- Creation of stairs

## Hangers And Support Module

- Supporting the Equipments, structures, pipes
  - Modeling of supports
  - Modeling of line guide, hold down, limit stop.
  - Modeling of stiffener plates, doubler plate.
  - Modeling of cap plates.



# Why

## SmartBrains?

SmartBrains is the ultimate choice for all the working & non working engineer's in energy Sector training requirements. Our extensive portfolio of energy training courses are:

- ▶ 100% focused on the Oil and energy industry.
- ▶ Guided by the industry's renowned professionals with unprecedented knowledge of the Oil and energy industry.
- ▶ Highly interactive program with practical and relevant case studies.
- ▶ Training by extensively researched self developed cutting edge techniques.
- ▶ Skill development techniques with comprehensive set of documentation, practical skills and tools used in the Industry.

- ▶ The perfect opportunity to develop network and experiences with knowledge sharing.
- ▶ Internationally acclaimed engineering qualification.
- ▶ Designed for both Fresh engineers and working professionals to attain growth in oil and energy industry.
- ▶ One of the finest international faculty.
- ▶ Interactive, interesting and motivational training sessions.
- ▶ Access to enormous reference books and research materials.

### Admission

#### Requirements

- ▶ Duly Filled Application Form
- ▶ 2 Photographs
- ▶ Photo State of Qualifying Examination
- ▶ Address Proof
- ▶ I.D. Proof
- ▶ Latest Resume

### Declaration

- ▶ This training program is on AUTONOMOUS basis conducted by SmartBrains.
- ▶ SmartBrains has right to expel any student at any time for misbehavior, poor attendance without refunding the fees.
- ▶ Certification will be issued only after completion of course, submission of all assignments and passing all the examinations.
- ▶ SmartBrains has its own rules and regulations about conducting examinations and assessment of examinations



Oil & Energy

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