

# **COURSES MODULE**

## **For**

# **CIVIL & STRUCTURAL DESIGN ENGINEERING**



## **Course Outline**

- ❖ Basics of Structural Engineering
- ❖ Analysis & Design of Structures
- ❖ Steel Frame Connection
- ❖ 2D & 3D Modeling Structures
- ❖ 3D Structural Design
- ❖ Structural Analysis & Design.
- ❖ Stress & Failure Analysis.
- ❖ Foundation Design.
- ❖ Concrete Design & Analysis.
- ❖ Structural Evaluation.
- ❖ Steel Structure Design.
- ❖ Pre- Engineered Buildings.
- ❖ Construction Detailing & Drawings.
- ❖ Infrastructure Design.
- ❖ Storm Water & Sewage Design.
- ❖ Bridges, Roads, & Power Projects Design.
- ❖ Investigation & Failure Analysis.
- ❖ Proof Checking & Advisory Services.
- ❖ Application Design.
- ❖ Restoration & Rehabilitation of Structures.
- ❖ Analysis & Evaluation of Soundness of Structures.
- ❖ Structures, Tanks, Bins, Hoppers.
- ❖ Steel Analysis & Steel Design.
- ❖ Rain Water Harvest System.

**CERTIFICATION & PG DIPLOMA COURSES FOR **Oil & Gas/Chemicals/Energy & Power industries.****



# Civil & Structural Design & Detail Engineering

## Basics of structural Engineering

- Design of RCC Beams, Columns and Slabs
- Overhead Tank Design
- Ductile Detailing
- Concrete Chimneys
- Staircase Design
- Steel Beam & Column Design
- Connection Design
- Base Plate 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
- Joint Coordinate Specification
- Plate Girder
- Member Element Incidences Specifications
- Group Definition
- Member Element
- Load Combination, Analysis Specification

## Steel Frame Connection

- Setup Phase I ( Job Options)
- Modelling Phase 1(Beams and Columns)
- Modelling Tools
- Modelling Phase 2
- Connections
- Material Operations
- Setup Phase 2
- Drawing Editor
- Parametric Modelling

## 2D & 3D Modelling Structures

- Create project, Model & Drawing File
- Copy, Delete & Open Model
- Preferences 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 Member
- Place 3D Solids
- Modify, Manipulate, Cutbacks
- Linear Material Reports

- Review & locate Elements
- Create User Section Table

## 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 Modeller

- Creation of platforms, Ladders, Stairs

## Hangers and Support Module

- Supporting the Equipments, Structures, pipes
- Modelling of supports
- Modelling of line guide, hold down, limit stop.
- Modelling of stiffener plates, doubler plate.
- Modelling of crap plates.

## 3D Structural Design

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

## Draft

- Final output of plant layout
- GA Drawing creation in 2D
- Dimensioning, Labelling
- Export the drawing to AutoCAD
- Reflecting the design change in draft
- Commands in draft

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