structedu
Exploring Potential

Staad Pro (Mid-Rise)

CURRICULUM

1. INTRODUCTION

    1.1 Types of Steel Structures

    1.2 Types of Steel Sections

2. WORK FLOW IN STRUCTURAL DESIGN

3. DATA REQUIRED TO DESIGN A STEEL BUILDING

4. UNDERSTANDING ARCHITECTURAL DRAWINGS

5. UNDERSTANDING SOIL REPORT

6. CONFIGURING THE GIVEN BUILDING

    6.1 General Arrangement of Structural Elements

    6.2 Arriving Preliminary Sizes for Structural Elements

7. MODELLING PROCESS

    7.0.1 Understanding User Interface of STAAD

    7.0.2 Work Flow In STAAD

    7.1 Start & Setup a New Model in STAAD

    7.2 Definition of Properties in STAAD

        7.2.1 Definition of Material Properties

        7.2.2 Definition of Section Properties

    7.3 Modeling Elements

        7.3.1 Modeling of Columns

        7.3.2 Modeling of Beams

        7.3.3 Modeling of Truss

    7.4 Loading

        7.4.1 Application of Gravity Loads

        7.4.2 Application of Wind Loads

            7.4.2.1 Basic Concepts and Codal Provisions of Wind Loads

    7.5 Support conditions at base (Fixed or Pinned?)

    7.6 Load Combinations

8. ANALYSIS & RESULT INTERPRETATIONS OF THE BUILDING

8.1 Check for Modeling Errors

8.2 Running Analysis

8.3 Stability checks as per IS Codes

8.4 Checking Moments & Shear Forces for Beams

8.5 Checking Moments & Shear Forces for Columns

8.6 Checking Axial Forces for Truss Elements

8.8 Interpretations of Base Reactions

9. DESIGN & DOCUMENTATION

9.1 Design Parameters

9.1.1 MAIN, FYLD, LY, LZ, DJ1, DJ2, TRACK

9.2 Design Steps

9.2.1 Load list

9.2.2 Check Code

9.2.2.1 Design of Beam

9.2.2.1.1 Design of Beam in STAAD

9.2.2.1.2 Design of Beam using Manual Calculations

9.2.2.2 Design of Column

9.2.2.2.1 Design of Column in STAAD

9.2.2.2.2 Design of Column using Manual Calculations

9.2.3 Structure Optimization

9.2.4 Material Take off

9.3 Connections

9.3.1 Types of Connections

9.3.1.1 Moment Connection (Weld)

9.3.1.1.1 Beam to Column (Flange)

9.3.1.1.2 Beam to Column (Web)

9.3.1.1.3 Beam to Beam

9.3.1.2 Moment Connection (Bolted)

9.3.1.2.1 Beam to Column (Flange)

9.3.1.2.2 Beam to Column (Web)

9.3.1.2.3 Beam to Beam

9.3.1.3 Shear Connection (Weld)

9.3.1.3.1 Beam to Column (Flange)

9.3.1.3.2 Beam to Column (Web)

9.3.1.3.3 Beam to Beam

9.3.1.4 Shear Connection (Bolted)

9.3.1.4.1 Beam to Column (Flange)

9.3.1.4.2 Beam to Column (Web)

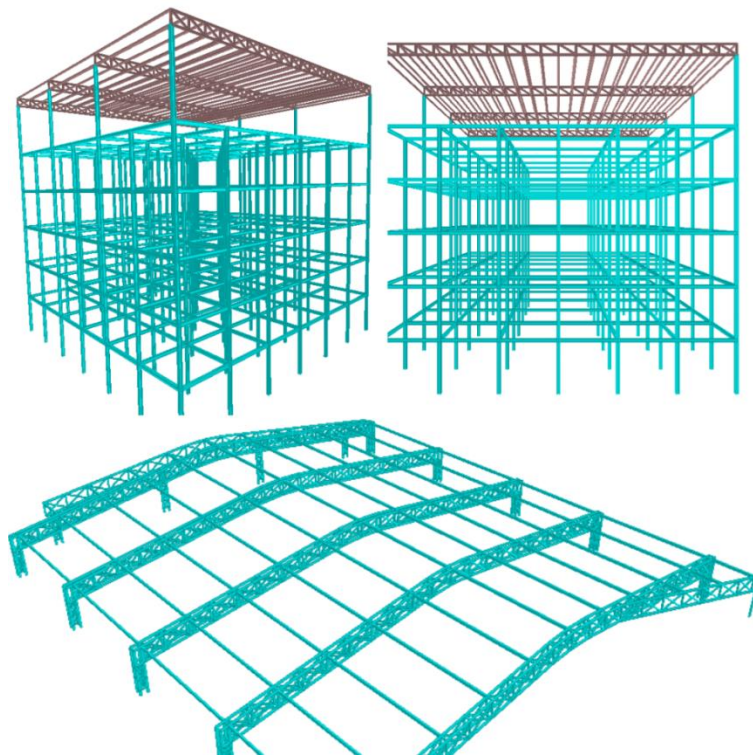9.3.1.4.3 Beam to Beam

9.3.1.5 Base Plate & Anchor Bolts

9.3.1.5.1 Fixed Connection

9.3.1.5.2 Pinned Connection

9.4 Documentation

10. ASSIGNMENTS

11. TESTS

TAKE AWAY OF THE COURSE
✓ Complete Understanding on Structural Design of Steel Structures (Mid Rise) ✓ Exposure to different types of Loads acting on a Structure ✓ Complete understanding of Design of Steel Members ✓ Complete Understanding of Shear and Moment Connections ✓ Complete Understanding of Base Plate & Anchor Bolt Design ✓ Exposure on Standard Codes such as 　IS 800 2007 　IS 875 PART I 　IS 875 PART II 　IS 875 PART III ✓ Complete understanding on STAAD Software