CSI Etabs & Safe Professional Live Course

A Complete Professional Building Design Online Course

Ultimate Learning Hub for Engineers & Architects!

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Course Instructor

Engr SM Hedaetullah

B.Sc. in Engineering (Civil), Under University of Rajshahi
Founder and CEO, qLearnify
Structural Engineer, Design & Survey Engineering, Pallabi, Mirpur-12
Former Lecturer and Head, Rajshahi University Affiliated TMSS B.Sc. Engg College, Bogura.
Former Structural Engineer, Innovative Design & Construction Consultancy, Bogura.

[He also designed 150+ RC buildings using CSI Etabs and CSI SAFE, which were up to 15 stories.]

"এই কোর্সে কি কি শিখবেন (Course Module)"

Lecture 1: Overview of Structural Analysis & ETABS

- Flow Chart for Structural Analysis and Design
- Which Version of ETABS Software Should Use
- Discussion on Different Design Codes
- Discussion on Different FE Software
- Discussion on Different Design Components
- Introduction to CSI ETABS & Model Initialization
- Discussion on Concrete Material Properties
- Discussion on Rebar Material Properties
- Define Complete Material Properties (FXL8)

Lecture 2: Material and Section Properties in ETABS

- Discussion on Section Properties
- Discussion on Stiffness Modifier
- Define Beam & Column Sections (FXL8)
- Define Slab, Wall, Rebar Properties
- Define Load Pattern & Load Case
- Mass Sources

Lecture 3: Loads and Load Combinations in ETABS

- Discussion on Load Combinations
- Vertical Earthquake Calculation
- Selection of Load Combination Case
- Create Load Combinations (23 Nos) – Normal Condition
- Create Load Combination (31 Nos) – Special Condition

Lecture 4: 2-Story Building Modeling

- Define Story Level and Grid
- Define Beam, Column & Slab Sections
- Create Model with staircase
- Assign Loads on building
- Replicate Model

Lecture 5: 2-Story Building Modeling

- Modify and Assign Roof Load
- Analysis Model & Check as per BNBC 2020

Lecture 6: 2-Story Building Modeling

- Design Beam and Column in etabs
- Design Slab in Etabs and excel
- Staircase using excel

Lecture 7: 15-Story Building Modeling

- Determine Soil Site Class
- Selection of Seismic Design Categories of Structure
- Selection of structure Case
- Modify Material Properties as per BNBC 2020 (FXL8)
- Modify Beam & Column Section as per BNBC 2020
- Discussion on Floor plan,
- Modify & Create Grid System (If Required)
- Create New Grid System in CSI Etabs
- Edit Story Data

Lecture 8: 15-Story Building Modeling

- Draw Column & Lift core Wall (Pier & Spandrel)
- Draw Grade Beam & Floor Beam
- Draw Floor Slab

Lecture 9: 15-Story Building Modeling

- Draw Staircase
- Replicate Model and create floor opening
- Assign Live Load, Floor Finish, Staircase Live Load
- Calculate & Assign Stair Steps Load
- Calculate & Assign Partition Wall Load for Actual as well as Approximate Methods

Lecture 10: 15-Story Building Modeling

- Replicate Model & Modify Roof Portion
- Modify Roof Loads as per BNBC 2020
- Calculate and Assign Lift-Core Load and water load

Lecture 11: 15-Story Building Modeling

- Assign Mesh for Floor and Wall System
- Discussion on Diaphragms Center of Mass and Rigidity
- Define Earthquake Load
- Define Wind Load
- Pre-Analysis & Design Decision On Structure
- Check Model For Serviceability (Vertical Deflection)

Lecture 12: 15-Story Building Modeling

- P-Delta Check of Structure
- Sway or Displacement Limitation Check
- Stiffness (Soft-Story) Irregularity Check
- Story Drift & Drift Ratio Check
- Overturning Check of Building
- Torsion Irregularity Check

Lecture 13: 15-Story Building Modeling

- Torsion Irregularity Check and modify structures
- Column Design –Design Column for suitable sections
- Beam Column Capacity Check Ratio
- Column Design – Column Grouping & Reinforcement Calculation
- Column Design – Nos of Rebar Calculation and Rebar Detailing
- Column Design – Column Ties / Shear Rebar Calculation

Lecture 14: 15-Story Building Modeling

- Beam Design – Design Beam for suitable sections
- Beam Column Capacity Check Ratio
- Beam Design – Create Beam Group, Find Torsion Rebar
- Beam Design – Torsion Rebar Placement
- Beam Design – Minimum Rebar Calculation
- Beam Design – Main rebar Calculation & Finalization
- Beam Design – BNBC 2020 Requirement for Special Moment Resistance Moment (SMRF)
- Beam Design – Longitudinal & Torsion Rebar Calculation and Detailing
- Beam Design – Stirrups Calculation for Shear & Torsion Reinforcement
- Slab Design- Basic Introduction to Slab Design
- Slab Design- Slab Design Using CSI Etabs FEM Methods

Lecture 15: 15-Story Building Modeling

- Lift core Design – Basic Introduction and Pier Assignment

- Lift core Design – Revised Preferences, Load Combination & Design Methods
- Lift Core Design – Design Using Simplified C & T Methods
- Lift core Design – Assign & Design Spandrel
- Design Using Uniform Reinforcing Methods (For Basement and OBWT Wall)

Lecture 16: Dynamic Analysis of Structure

- Introduction to Dynamic Analysis of Structure
- Discussion on Dynamic Response of a Structure
- Criteria for Dynamic Analysis of Building Structures
- Types of Dynamic Analysis
- Discussion on Response Spectrum Analysis (RSA)
- Discussion on Number of Modes (RSA)
- Discussion on Materials Properties for Non-Linear Analysis
- Define Modal Case In Etabs
- Define RSA Function
- Analysis Model for RS PMR and Modify Modes
- Define Load Combination for RSA And Design
- Modify RSA Scale Factor and Re-Analysis
- Base Shear Check for RSA Vs ESA
- Final Design Check For RSA

Lecture 17: Foundation Design Using CSI SAFE

- Basic Introduction to Sub-Soil Investigation Report
- Basic Concept of Soil Subgrade Modulus with Excel calculation
- Soil Stress Distributions
- New Model Initialization
- Define Materials Properties
- Define Slab Properties
- Define or Modify Reinforcing Bar Size
- Define Soil Subgrade Properties
- Define Load Patterns
- Define Load combination as per BNBC
- Basic discussion on mass sources
- Single or Isolated Footing Design (Centric)

Lecture 18: Foundation Design Using CSI SAFE

- Single or Isolated Footing Design (Eccentric)
- Strap Footing Analysis and design

- Combined Footing Analysis and design
- Continuous or Strip Footing Analysis and design

Lecture 19: Foundation Design Using CSI SAFE

- Export footing loads from Etabs
- Rafts or Mat Footing Design

Lecture 20: Foundation Design Using CSI SAFE

- Pile Cap Analysis and design
- Manual Pile Design

Lecture 21: Design Using Excel Sheet

- Slab Design Using Excel Sheet (BNBC 2020)
- Staircase Design Using Excel Sheet (BNBC 2020)
- Beam Design Using Excel Sheet (BNBC 2020)
- Column Design Using Excel Sheet (BNBC 2020)
- Single Footing Design Using Excel sheet (BNBC 2020)

এই কোর্সের সাথে কি কি পাবেন?

1. CSI Etabs & CSI Safe সফটওয়্যার (ইনস্টলেশন ভিডিওসহ)
2. প্রায় ৳৩,৫০০ মূল্যের এক্সক্লুসিভ রিসোর্স ফ্রিঃ
   - AutoCAD Detailing File
   - ETABS & SAFE Default Format
   - Lecture Note
   - Floor Plan
   - ক্লাসে ব্যবহৃত নিচের Excel Sheet (Design & Analysis):-
     - A.1. Earthquake Analysis Excel as per BNBC-2020, ASCE 7-05
     - A.2. Wind Load Analysis Excel as per BNBC-2020, ASCE 7-05
     - A.3. Vertical Earthquake Effect Calculation Excel as per BNBC-2020, ASCE 7-05
     - A4 Soil Site Class for Earthquake analysis
     - B1. P-Delta Check (BNBC-2020, ASCE 7-05)
     - B2. Base-Shear Check (Seismic Value)
     - B3. Drifts and Sway Limitation Check
     - B4. Soft Story Check
     - B5. Torsional Irregularity Check
     - B6. Overturning Moment Check
     - C2. Two-Way Slab Design (USD/LRFD Method)
     - C3 Beam Design as per BNBC 2020 and ACI 318-08
     - C9 Cantilever Slab (Balcony) Design (WSD)
     - C10 Single Footing (Square) Design (USD)
     - C11 Single Footing (Rectangle) Design (USD)
     - D1–D6. Staircase Design Excel Sheets (6 Cases)
     - E1. Beam Reinforcement Detailing & Rebar Calculation
     - E2. Column Reinforcement Detailing & Rebar Calculation
     - E3. Shear Wall Reinforcement Detailing & Rebar Calculation
     - E4. Development Length and Lapping Length Calculation
   - BNBC 2020 Short Note:
     - V-1 PART-1 CHAPTER-1: Scope and General (2 Pages PDF)
     - V-1 PART-3 CHAPTER-1: General Building Requirements (11 Pages PDF)
     - CHAPTER-1: Definitions and General Requirements (6 Pages PDF)
     - CHAPTER-2: Loads on Buildings and Structures (19 Pages PDF)
     - CHAPTER-5: Concrete Materials (3 Pages PDF)
     - CHAPTER-6: Strength Design of RC Structures (9 Pages PDF)
     - CHAPTER-8: Detailing of Reinforcement in Concrete Structures (12 Pages PDF)

Certification

Earn a qLearnify certification in CSI ETABS & SAFE concrete structure design to enhance your professional skills

আরও বিস্তারিত জানতে চান?

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