ACT MEP

Course Description

The BIM Architecture & Structure course at ACTMEP Training Institute is designed to provide students with comprehensive knowledge and hands-on experience in Building Information Modeling (BIM) for architectural and structural design. This course equips participants with the skills needed to effectively utilize BIM software tools and methodologies to enhance the planning, design, and management of building projects.

Course Objectives:

- Understand the fundamentals of BIM and its application in architecture and structural engineering.
- Learn to create detailed architectural and structural models using BIM software.
- Develop proficiency in using leading BIM tools such as Autodesk Revit, Navisworks, and BIM 360.
- Gain the ability to collaborate and coordinate with different disciplines within a BIM environment.
- Apply BIM processes for project visualization, simulation, and documentation.
- Implement BIM standards and protocols in real-world projects.

Number of Days

3 Months

Continuing Education Hours

60 Hours

Who Should Attend

- **Civil Engineering Architecture**
- **Interior Design**
- **Construction Management**

Course Completion Certificate

Yes

Software Used

Software Used: Autodesk Revit, Autodesk AutoCAD (for reference file), Navisworks, Twin motion, Autodesk Construction Cloud overview.

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BIM (Arch + Structure) For Freshmen

Course Outline

MODULE - 1 : Introduction to BIM and Revit Architecture

1.1 Understanding BIM

- Introduction to Building Information Modeling
- Benefits and principles of BIM
- LOD
- Benefits and advantages of BIM over traditional methods.
- Overview of BIM processes and workflows.
- Assessment 01- Quiz

1.2 Navigating the Revit Environment

- Overview of the Revit interface/GUI
- Setting up Units and Template
- Basic navigation and viewing tools
- Setting up a project
- Assessment 02-Quiz and Practical

1.3 Basic Operations and Tools

- Selection and modification tools
- Basic drawing and editing tools (lines, walls, doors, windows)
- Assessment 03-Practical

Module 2: Developing the Architectural Model

2.1 Creating the Architectural Model

- Setting up levels and grids
- Modeling and Editing floors, walls, ceilings, and roofs
- Understanding editing sequence
- Assessment 04-Practical

2.2 Adding and Editing Architectural Elements

- Adding doors, windows, and components, lighting fixtures
- Loading family types from the libraries
- Stairs, railings, and ramps
- Application of different modifying tools on model elements
- Understanding Curtain Walls
- Understanding Compound Walls
- Basic Family Creation
- Assessment 05-Practical

2.3 Developing the Site

- Creating topography
- Site components and landscaping
- Massing Tools
- Assessment 06-Practical

Module-3: Starting with Revit Structures Basic

3.1 Creating Structural Grids and Columns

- Understanding Revit Essentials
- Adding grids
- Placing structural columns
- Understanding the difference between Architectural Wall; Ramp; Structural Columns
- Assessment 07-Practical

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3.2 Foundations and Structural Floors

- Modeling foundations (isolated, strip, and slab foundations)
- Creating structural floors
- Slab edges, cantilevers, and openings
- Assessment 08-Practical

3.3 Beams and Framing Systems

- Placing beams and beam systems
- Modifying beam properties
- Assessment 09-Practical

3.4 Walls and Trusses

- Modeling structural walls
- Adding Trusses
- Assessment 10-Practical

Module-4: Inserting vs. Linking Files

4.1 Importing File Formats

- Getting acquainted with Insert Tab
- Importing/ Linking difference
- Assessment 11-Practical

Module 5: Documentation

5.1 Annotations and Schedules

- Dimensioning and text
- Detailing and tagging
- Generating schedules and lists
- Assessment 12-Practical

5.2 Detail Drawings

- Creating detailed views
- Duplicating views
- Adding details to views
- Creating Sections and understanding reference sections
- Creating Elevations
- Adding Call-outs
- Creating Legends
- Assessment 13-Practical

5.3 Generating Schedules and Quantities

- Creating Schedules
- Working with schedules and modifying them
- Assessment 14-Practical

5.4 Views and Sheets

- Creating and organizing views
- Setting up sheets for printing
- Printing Sheets
- Assessment 15-Practical

Module 6: Visualization and Presentation

6.1 Basic Rendering Techniques

- Applying materials
- Setting up lighting and cameras
- Assessment 16-Practical

6.2 Advanced Visualization

- Photorealistic rendering settings
- Exporting images and animations
- Artificial lighting & Sun setting
- System rendering & Cloud rendering
- Assessment 17-Practical

6.3 Presentation Techniques

- Creating compelling presentations
- Creating Color fill legends
- Using Revit with other software for presentations (e.g.:Photoshop/Lumion/Twinmotion)
- Assessment 18-Practical

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Module 7: Collaboration and Interoperability

7.1 Collaboration in Revit

- Introduction to worksharing
- Managing a collaborative project
- Assessment 19-Quiz

7.2 Interoperability with Other Software

- Exporting and importing from other CAD software
- Basics of using Revit models with other BIM software (e.g., Navisworks/AutoCAD/ACC)
- Assessment 20-Quiz and Practical