

Autodesk Revit Architecture Essentials

Target Audience

This course is tailored for architects, designers, and beginners in the AEC industry who are new to Autodesk Revit and want to learn essential tools and workflows for architectural design and documentation.

Course Objective

The objective of this course is to provide participants with foundational knowledge and skills to create, modify, and document architectural models in Autodesk Revit, enabling them to design efficiently and communicate their ideas effectively.

Course Outcome

- Learn to navigate the Revit interface and create architectural models, including walls, doors, windows, and roofs.
- Understand how to set up and manage levels and grids for project organization.
- Develop skills in creating detailed construction documents, including floor plans, elevations, sections, and schedules.
- Gain an introduction to 3D visualization and rendering techniques for architectural presentations.

Course Outline: The course comprises **40-hours** of theory and labs and is divided into **15** different chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Chapter 1. Introduction to Autodesk Revit for Architecture

Introduction

Autodesk Revit as a Building Information Modeler

Basic Concepts and Principles

- Understanding the Parametric Building Modeling Technology
- Terms Used in Autodesk Revit
- Creating a Building Model using Parametric Building Elements
- Visibility/Graphics Overrides, Scale, and Detail Level
- Extracting the Project Information
- Creating an Architectural Drawing Set
- Creating an Unusual Building Geometry
- Flexibility of Creating Special Elements
- Creating Structural Layouts
- Working on Large Projects
- Working in Large Teams and Coordinating with Consultants

Starting Autodesk Revit

User Interface

- Invoking Tools
- Title Bar
- Ribbon
- Status Bar
- View Control Bar
- Options Bar
- Type Selector
- Drawing Area
- Project Browser
- Keyboard Accelerators
- Properties Palette

Dialog Boxes

Multiple Document Environment

Interoperability of Autodesk Revit

Building Information Modeling and Autodesk Revit

Autodesk Revit Help

- Using the Revit Help

Worksharing Using Revit Server

Autodesk Construction Cloud

Chapter 2. Starting an Architectural Project

Introduction

Starting a New Architectural Project

Project Units

- Angle Unit
- Area Unit
- Length Unit
- Mass Density Unit
- Slope Unit
- Speed Unit
- Time Unit
- Volume Unit
- Currency Unit

Snaps Tool

- Dimension Snaps Area
- Object Snaps Area
- Temporary Overrides Area

Saving a Project

- Saving the Project File
- Using the Save Tool

Configuring Global Settings

- General Tab
- User Interface Tab
- Graphics Tab
- Hardware Tab
- File Locations Tab
- Rendering Tab
- Check Spelling Tab
- Steering Wheels Tab
- ViewCube Tab
- Macros and Cloud Model Tab

Closing a Project

Exiting Revit

Opening an Existing Project

- Opening an Existing Project Using the Open Tool

Model Display Tools

- Using the Zoom Tools
- Using the Orient Options
- Navigation Tools

- Other Display Options

Chapter 3. Placing Architectural Walls

Introduction

Creating a Building Project

- Sequence of Creating a Building Model
- Understanding Wall Types
- Creating Architectural Walls

Creating Slanted Walls

Creating Tapered Walls

Working With Stacked Walls

- Creating a Stacked Wall

Adding Interior Walls

Adding Wall Sweeps and Reveals

- Wall Sweeps
- Wall Reveals

Chapter 4. Using Basic Building Components-I

Introduction

Adding Doors in a Building Model

- Adding Doors
- Understanding Door Properties
- Adding a Door to a Wall
- Adding a Door to a Slanted Wall

Adding Windows to a Building Model

- Adding Windows
- Understanding Window Properties
- Adding a Window to a Wall
- Adding a Window to a Slanted Wall
- Adding a Window to a Tapered Wall

Doors and Windows as Wall Openings

Openings in the Wall

Chapter 5. Using the Editing Tools

Introduction

Creating a Selection Set

- Selecting Multiple Elements
- Isolating Elements Using the Selection Box
- Selecting Elements Using the Advanced Tools
- Restoring the Selection
- Using the Filter tool

Moving and Copying Elements

- Moving the Elements by Changing the Temporary Dimensions
- Moving the Elements by Dragging
- Moving the Elements by Dragging the End-Joint Components
- Moving the Elements by Selecting and Dragging
- Using the Move Tool
- Using the Copy Tool

Trimming and Extending Elements

- Using the Trim/Extend to Corner Tool
- Using the Trim/Extend Single Element Tool
- Using the Trim/Extend Multiple Elements Tool

Cutting and Pasting Elements

- Cutting Elements
- Copying Elements to the Clipboard
- Pasting Elements from the Clipboard

Rotating Elements

Mirroring Elements

- Mirroring Elements using the Mirror - Pick Axis Tool
- Mirroring Elements using the Mirror - Draw Axis Tool

Creating an Offset

Creating an Array of Elements

- Linear
- Radial

Matching Elements

Aligning Elements and Working with Constraints

Deleting Elements

Splitting Elements

Splitting with Gap

Splitting Faces

Creating Parts

- Resizing Created Parts
- Changing the Material of Created Parts
- Dividing Parts

Grouping Elements

- Creating Groups by Selecting Elements in Project Views
- Creating Groups Using the Group Editor
- Creating a Detail Group
- Creating Model and Attached Detail Groups
- Placing Groups
- Swapping Groups
- Modifying Groups
- Excluding Elements from a Group
- Saving and Loading Groups
- Converting Groups into Linked Models
- Deleting Groups

Creating Similar Elements

Pinning and Unpinning Elements

Scaling Elements

Using Diagnostic Tools

- Measuring Distance between References and Along an Element
- Selecting Elements Using the Element ID

Assemblies

- Creating Assemblies
- Editing Assemblies
- Creating Assembly Views and Sheets

Chapter 6. Working with Datum Plane and Creating Standard Views

Introduction

Working with Levels

- Understanding Level Properties
- Adding Levels
- Modifying Level Parameters

Hiding Elements in a View

- Controlling the Visibility of Levels

Working with Grids

- Creating Grids
- Modifying Grids
- Grid Properties
- Customizing the Grid Display
- Controlling the Visibility of Grids

Reference Planes

Work Planes

- Setting a Work Plane

- Controlling the Visibility of Work Planes

Working with Project Views

- Viewing a Building Model
- Visibility/Graphic Overrides of an Element
- Visibility/Graphic Overrides of an Element Category
- Making Elements Transparent
- Using the Temporary Hide/Isolate Tool
- Plan Views
- Elevation Views
- Section Views
- Using the Scope Box Tool

Chapter 7. Using Basic Building Components-II

Introduction

Creating Architectural Floors

- Sketching the Floor Boundary

Creating Roofs

- Creating Roofs by Footprint
- Creating Roofs by Extrusion
- Modifying Roof Properties and Editing Shapes

Shape Editing Tools for Floors

- Modify Sub Elements
- Add Point
- Add Split Line
- Pick Supports
- Reset Shape

Creating Ceilings

- Creating an Automatic Ceiling
- Sketching a Ceiling
- Using the Pick Walls Method
- Modifying a Ceiling

Rooms

- Adding Rooms
- Calculating Room Volumes
- Cutting Openings in a Wall, Floor, Roof, and Ceiling

Joining Walls with Other Elements

- Using the Attach Top/Base and Detach Top/ Base Tools

Chapter 8. Using Basic Building Components-III

Introduction

Using Components in a Project

- Adding Components

Adding Stairs

- Run Tool
- Landing Tool
- Support Tool
- Modifying Stairs Properties

Adding Railings

- Adding Railings by Sketching the Path
- Adding Railings by Placing on Stair/Ramp
- Modifying Railing Properties
- Modifying Railing Joints

Adding Ramps

Using Curtain Systems in a Project

- Creating a Curtain Wall Using the Wall: Architectural Tool
- Creating a Curtain Wall by Picking Lines
- Creating a Curtain System on a Face
- Adding Curtain Grids
- Modifying Curtain System Panels
- Adding Doors and Awnings to a Curtain System
- Adding Mullions

Copying Elements from One Level to Another

- Using the Pasting Tools

Chapter 9. Adding Site Features

Introduction

Working with Site Features

- Creating a Toposolid
- Modifying Toposolid and Sub-Element
- Creating Subdivision
- Simplifying Toposolids
- Excavating Toposolids
- Grading Toposolid
- Creating Topography from Imported Data

Setting the Contour Display

Adding Property Lines

- Sketching Property Lines
- Creating Property Lines Using Distances and Bearings

Adding Site Components

Adding Parking Components

Adding Labels to Contours

Chapter 10. Using Massing and Family Tools

Introduction

Understanding Massing Concepts

Creating the Massing Geometry

- Creating a Massing Geometry in the Family Editor
- Editing a Massing Geometry in the Family Editor
- Creating Cuts in a Massing Geometry by Using the Family Editor
- Placing the Massing Geometry in a Project
- Creating the In-Place Mass in a Project

Massing in Conceptual Design Environment

- Interface of the Conceptual Design Environment
- Creating Masses in Conceptual Design Environment

Creating Building Elements from the Massing Geometry Using

- Building Maker Tools
- Creating Walls by Selecting Faces
- Creating Floors by Selecting Faces
- Creating Roofs by Selecting Faces
- Creating Curtain Systems by Selecting Faces
- Controlling the Visibility of a Massing Geometry
- Adding other Building Elements

Creating Families

- Creating In-Place Families
- Creating Families Using Standard Family Templates

Chapter 11. Adding Annotations and Dimensions

Introduction

Adding Tags

- Tagging Elements by Category
- Tagging All Elements in a View
- Tagging Treads or Risers

- Tagging with Multiple Leaders

Room Tags

- Room Separation
- Tagging Rooms

Keynotes

- Loading Keynote File
- Placing Keynotes
- Adding Keynote Legends

Adding Symbols

Adding Dimensions

- Types of Dimensions
- Dimensioning Terminology
- Adding Permanent Dimensions
- Adding Alternate Dimension Units
- Baseline and Ordinate Dimensions
- Editing Dimensions
- Controlling the Display of Tick Marks and Dimension Arrows
- Creating Linear Wall Dimensions Automatically
- Adding Spot Dimensions
- Placing a Spot Dimension
- Modifying Spot Dimension Properties
- Converting Temporary Dimensions to Permanent Dimensions

Chapter 12. Creating Project Details and Schedules

Project Detailing in Autodesk Revit

Creating Details in a Project

- Callout View
- Displaying the Callout View
- Modifying Callout View Properties
- Adding Details to the Callout View

Crop Regions

- Model Crop Region
- Annotation Crop Region

Creating Drafted Details

- Creating a Drafting View
- Drafting a Detail
- Line Style Settings
- Using Line Weights

- Using Line Patterns

Adding Text Notes

- Creating Text Notes
- Editing Text Notes
- Creating a Model Text

Revision Clouds

- Creating the Revision Cloud
- Adding a Revision Tag

Using Schedules in a Project

- Generating a Schedule
- Exporting Schedule to Excel Sheet
- Creating a Legend View

Chapter 13. Creating and Plotting Sheets

Introduction

Creating Drawing Sheets

- Adding a Drawing Sheet to a Project
- Adding Views to a Drawing Sheet
- Modifying View Properties
- Panning the Viewports Added to the Sheet
- Replacing a View in the Viewport
- Adding Schedules to a Drawing Sheet
- Modifying a Building Model in a Drawing Sheet

Creating Guide Grids

Duplicating Dependent Views

- Creating Dependent Views
- Adding Matchline to Dependent Views
- Adding View Reference

Printing in Autodesk Revit

- Printing Drawing Sheets and Project Views
- Selecting and Modifying the Printer Settings
- Using the Print Setup Dialog Box
- Previewing the Print Setup

Chapter 14. Creating 3D Views

Introduction

Three-Dimensional (3D) Views

- Generating Orthographic View
- Dynamically Viewing Models Using Navigation Tools
- Using the Orient Tool
- Generating Perspective Views
- Fly Mode for View
- Locking and Unlocking 3D Views
- Using the Section Box

Chapter 15. Rendering Views and Creating Walkthroughs

Rendering in Revit

- Rendering Workflow
- Introduction to Materials
- Applying Lights
- Using Decals and Entourages
- Rendering Settings

Creating a Walkthrough

- Creating the Walkthrough Path
- Editing and Playing the Walkthrough
- Recording a Walkthrough

Autodesk | Rendering

- Rendering in Cloud
- Accessing Render Gallery

Rendering in Enscape

- Advantages of Enscape
- Starting Enscape Rendering
- Navigating in Enscape
- Creating Views using Enscape
- Rendering Images using Enscape
- Placing Components using Enscape Asset Library
- Changing the Day time in Enscape
- Exporting Enscape Project
- Making a Video of the Project