



Building Modeling using SketchUp

Course Objective

The objective of this course is to equip learners with the fundamental skills and knowledge necessary to efficiently use Trimble SketchUp for designing and modeling buildings. The course will cover essential tools, workflows, and techniques for both interior and exterior modeling. Participants will gain hands-on experience to create accurate, visually compelling models, empowering them to excel in architecture, interior design, and other design disciplines. Online resources and materials will be integrated to ensure continued learning beyond the classroom.

Course Outcome

Learner will be able to...

- Understand the SketchUp interface and its basic tools
- Create precise 2D and 3D models
- Develop skills for interior and exterior building design
- Work with components, groups, and layers
- Utilize rendering plugins and online resources effectively
- Present models professionally using scenes, animations and walkthrough to clients

Prerequisites

This course is designed for beginners. However, learners are expected to have:

- Basic knowledge of computers and file management.
- Familiarity with architectural or interior design concepts is helpful but not mandatory.



System Requirements for Windows

Operating System:

- Windows 10 or later (64-bit)

Hardware:

- Processor: Intel Core i5 or higher
- RAM: Minimum 8 GB (16 GB recommended)
- Graphics Card: Dedicated GPU with at least 1 GB VRAM (e.g., NVIDIA GeForce GTX 1050)
- Storage: At least 1 GB of free disk space

Note:

- Latest version of SketchUp (Pro or Free)
- Stable internet connection for downloading SketchUp, accessing extensions, and the 3D Warehouse

Course Outline

The course comprises **40-hours** of theory and labs and is divided into **13** different modules.

Module 1: Introduction to SketchUp

- Overview of SketchUp.
- Downloading and installing SketchUp.
- Understanding the user interface
- Navigation tools (Orbit, Pan, Zoom).
- Customizing the workspace.
- Setting up project units and templates.
- Using the Instructor panel.



Module 2: Basic Drawing Tools

- Drawing lines, rectangles, and circles.
- Using freehand and polygon tools.
- Working with arcs and curves.
- Understanding and using the axis.
- Using undo, redo, and erase commands.

Module 3: Editing and Modifying Tools

- Selecting objects.
- Moving, copying, and rotating objects.
- Scaling and resizing.
- Using the Push/Pull tool for extrusion.
- Offsetting lines and shapes.
- Using Follow Me for complex extrusions.

Module 4: Working with Groups and Components

- Understanding the difference between groups and components.
- Creating and editing groups.
- Making and saving components.
- Importing components from the 3D Warehouse.

Module 5: Organizing the Model

- Using the Outliner to manage models.
- Creating and managing layers/tags.
- Locking and isolating objects.
- Hiding and unlocking elements for better organization.



Module 6: Applying Materials and Textures

- Using the Materials panel
- Applying and editing materials.
- Importing custom textures and applying them to models.
- Projecting textures onto curved surfaces for accurate finishes.

Module 7: Interior Modeling

- Creating walls, floors, and ceilings for interior spaces.
- Adding doors, windows, and other openings.
- Modeling furniture, fixtures.
- Creating built-in storage.

Module 8: Exterior Modeling

- Designing building exteriors (walls, windows, doors).
- Adding roofs and roof components (sloped, gabled, etc.).
- Creating stairs, railings, and other exterior details.
- Landscaping basics: modeling terrain, trees, and plants.

Module 9: Working with Scenes and Views

- Setting up camera views
- Creating and managing scenes
- Adjusting scene transitions
- Saving and exporting views
- Using sections for interior exploration



Module 10: Introduction to Plugins and Extensions

- Overview of popular SketchUp extensions
- Installing and managing extensions
- Using sandbox tools for terrain modeling
- Introduction to rendering plugins (e.g., V-Ray, Enscape)

Module 11: Rendering and Visualization

- Basic rendering concepts
- Setting up lighting and shadows
- Applying materials for rendering
- Exporting rendered images

Module 12: Importing and Exporting Files

- Importing CAD files (DWG, DXF)
- Working with image files (JPG, PNG)
- Exporting models to various formats (PDF, OBJ, FBX)
- Using SketchUp Viewer for presentations

Module 13: Printing and Presentation

- Preparing models for printing
- Printing to scale
- Creating animations and walkthroughs
- Exporting videos
- Best practices for client presentations