

Autodesk Professional in Revit for Electrical Design

Target Audience

This course is designed for electrical engineers, MEP designers, BIM managers, and professionals who want to advance their expertise in electrical system design and documentation using Autodesk Revit. It is suitable for professionals working in architecture, MEP engineering firms, and design-build environments, as well as students and engineers looking to strengthen their skills in 3D electrical modeling and Building Information Modeling (BIM).

Course Objective

The course aims to provide comprehensive knowledge and practical skills in Autodesk Revit for electrical design workflows. Participants will learn to create and manage complex electrical systems, generate accurate documentation and schedules, develop custom electrical families, perform load and lighting analyses, and collaborate effectively with other disciplines within a BIM environment.

Course Outcome

- **Electrical System Modeling Proficiency** – Gain expertise in creating circuits, panels, lighting systems, conduit, cable trays, and wiring using advanced Revit tools.
- **Advanced Documentation & Scheduling** – Learn to produce detailed drawings, views, panel schedules, and annotation standards customized for electrical design projects.
- **Family Creation & Customization** – Master creating and modifying electrical families, including connectors, light sources, and annotation families, with advanced parameter management.



- **Electrical Analysis & Load Calculations** – Understand how to perform electrical load calculations, configure electrical settings, and conduct conceptual lighting analysis.
- **Collaboration & BIM Coordination** – Explore linking files, worksharing, and coordination workflows to ensure seamless collaboration with multidisciplinary project teams.

Course Outline: The course comprises **40 hours** of theory and practical labs and is divided into **5 comprehensive chapters**. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Chapter 1. Modeling Electrical Systems

Adding Electrical Equipment and Fixtures

- Adding electrical equipment (panel boards, switchgear, transformers, low voltage panels)
- Adding devices and light fixtures (lighting, communication, data, fire alarm, nurse call, security, telephone devices)

Creating Electrical Systems

- Creating and editing circuits (equipment and branch circuits, low voltage circuits, editing circuit paths)
- Creating and editing switch systems
- Using the System Browser (finding circuits and devices, configuring columns)

Modeling Connecting Geometry

- Adding conduit and cable trays (configuring type settings, fittings)
- Adding wires (creating and editing wire types, controlling tick marks, number of conductors, homeruns)

Chapter 2. Documentation and View Management

Manipulating Views and Templates

- Assigning, applying, and editing view templates and visibility/graphic overrides
- Managing and applying panel schedule templates (creating new templates)
- Using miscellaneous view features (selection boxes, scope boxes, view range, plan regions, browser organization, color fills, phase filters)

Producing Schedules and Sheets

- Creating schedules (building components, key schedules, embedded schedules)
- Working with sheets, title blocks, and revisions (revision numbering, tags, clouds, project/sheet settings)

Understanding View Types

- Drafting views
- Legend views
- Callouts
- Section/detail views
- Elevation views
- Dependent views
- 3D views

Applying Phasing and Filters

- Using element phase settings, phase filters, phase graphics overrides

Using Annotations and Keynotes

- Using tags (equipment, devices, circuits)
- Using keynotes and note blocks (keynoting settings, formatting, legends)

Chapter 3. Family Creation and Parameter Management

Modeling Family Elements

- Defining MEP connectors (electrical, cable tray, conduit)
- Understanding family types (system and component)
- Family creation workflow (constraints, reference planes, lookup tables, geometry creation, nested families, formulas)
- Configuring light sources
- Determining family category and part type
- Differentiating family hosting types
- Configuring element visibility settings (object styles, subcategories, detail level, visibility)

Modeling Annotation Families and Tags

- Creating annotation families and tags (labels, symbolic lines, nested annotations)
- Defining symbols and annotations in a family

Adding and Managing Parameters

- Using and understanding parameter types (family, shared, system, project, global, instance, type parameters)
- Distinguishing between parameter disciplines and data types

Chapter 4. Electrical Analysis and Load Calculations

Performing Load Calculations

- Specifying load, power factor, load classification

Performing Conceptual Lighting Analysis

- Using spaces and light sources to estimate illumination

Configuring Electrical Settings

- Load classifications and demand factors

Chapter 5. Collaboration and Worksharing

Working with Reference and Linked Files

- Understanding imported vs. linked files (CAD files, images, PDFs, positioning)
- Managing linked files (adding, removing, loading, reloading)

Applying Worksharing Concepts

- Understanding worksets, central file, file synchronization, element borrowing/relinquishing

Collaborating with Other Teams

- Exporting to different formats (file formats, options)
- Checking for model interferences
- Using copy/monitor data and conducting coordination reviews
- Managing design options (assign, display, accept, switching options)
- Transferring project standards