



Autodesk Revit: Fundamentals for Mechanical and Plumbing

Course ID #: 7000-741-ZZ-Z

Hours: 21

Course Content

Course Description:

In this course, you will cover the concepts and principles of creating 3D parametric models of Mechanical and Plumbing systems from engineering design through construction documentation to take full advantage of Building Information Modeling.

This training course is intended to introduce users to the software's user interface and the basic HVAC, and piping/plumbing components that make the Autodesk Revit software a powerful and flexible engineering modeling tool. The course will also familiarize users with the tools required to create floor plans, populate construction documents as well as print the parametric model. The examples and practices are designed to take users through the basics of a Mechanical and Plumbing project from the initial process of linking in various discipline (i.e., architectural, structural) models to generating construction documents.

The Autodesk Revit Fundamentals for Mechanical and Plumbing Systems training course contains in-class exercises that are specific to both disciplines.

Course Objectives:

Upon successful completion of this course, students will be able to:

- Utilize of Autodesk Revit software's fundamental commands for viewing, drawing, and editing.
- Incorporate and apply the Project and System browsers as well as the Properties palette.
- Place, load and insert mechanical and plumbing components/families while obtaining an understanding of how to connect equipment and fixtures to duct and piping systems.
- Obtain knowledge of Revit terminology, file-worksharing, and daily workflow utilization.
- Link Revit files along with knowledge of linking/importing CAD, PDF, image files and more.
- Formulate spaces and zones for heating and cooling load calculations and analyzation.
- Design HVAC networks connecting air terminals, mechanical equipment and generating duct and piping.
- Design plumbing networks connecting plumbing fixtures and creating pipes.
- Utilize automatic duct and pipe layout tools for generating HVAC and plumbing network layouts.
- Test and analyze of duct and piping systems.
- Populate and annotate construction documents.
- Add tags and produce schedules.
- Detail in the Autodesk Revit software.



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Prerequisites:

This course introduces the fundamental skills you need to learn the Autodesk Revit software for Mechanical and Plumbing Systems. It is highly recommended that you have experience and knowledge in Mechanical and Plumbing engineering and its terminology.

Target Audience:

Mechanical and Plumbing engineers

Topics:

Lesson 1: Introduction to BIM and Autodesk Revit

- 1.1 BIM and Autodesk Revit
- 1.2 Overview of the Interface
- 1.3 Starting Projects
- 1.4 Viewing Commands
- Practice 1a Open and Review a Project

Lesson 2: Basic Sketching and Modify Tools

- 2.1 Using General Sketching Tools
- 2.2 Inserting Components
- Practice 2a Insert Components – Mechanical
- Practice 2b Insert Components – Plumbing
- 2.3 Selecting and Editing Elements
- Practice 2c Select and Edit Elements – Mechanical
- Practice 2d Select and Edit Elements – Plumbing
- 2.4 Working with Basic Modify Tools
- Practice 2e Work with Basic Modify Tools – Mechanical
- Practice 2f Work with Basic Modify Tools – Plumbing
- 2.5 Working with Additional Modify Tools
- Practice 2g Work with Additional Modify Tools

Lesson 3: Starting Systems Projects

- 3.1 Linking and Importing CAD Files
- 3.2 Linking in Revit Models
- Practice 3a Start a Systems Project
- 3.3 Setting Up Levels
- 3.4 Copying and Monitoring Elements
- Practice 3b Copy and Monitor Elements
- 3.5 Coordinating Linked Models
- Practice 3c Coordinating Linked Models
- 3.6 Batch Copying Fixtures
- Practice 3d Batch Copy Fixtures – Mechanical
- Practice 3e Batch Copy Fixtures – Plumbing



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Lesson 4: Working with Views

- 4.1 Modifying the View Display
- 4.2 Duplicating Views
- Practice 4a Duplicate Views and Set the View Display – Mechanical
- Practice 4b Duplicate Views and Set the View Display – Plumbing
- 4.3 Adding Callout Views
- Practice 4c Add Callout Views – Mechanical
- Practice 4d Add Callout Views – Plumbing
- 4.4 Creating Elevations and Sections
- Practice 4e Create Elevations and Sections – Mechanical
- Practice 4f Create Elevations and Sections – Mechanic

Lesson 5: Spaces

- 5.1 Preparing a Model for Spaces
- 5.2 Adding Spaces
- Practice 5a Add Spaces
- 5.3 Working with Spaces
- Practice 5b Work with Spaces
- 5.4 Exporting for Energy Analysis
- Practice 5c Export for Energy Analysis

Lesson 6: Basic Systems Tools

- 6.1 Connecting Components
- Practice 6a Connect Components – Mechanical
- Practice 6b Connect Components – Plumbing
- 6.2 Creating Systems – Overview
- Practice 6c View and Create Systems – Mechanical
- Practice 6d View and Create Systems – Plumbing

Lesson 7: HVAC Systems

- 7.1 Adding Mechanical Equipment and Air Terminals
- Practice 7a Add Mechanical Equipment and Air Terminals
- 7.2 Adding Ducts and Pipes
- Practice 7b Add Ducts and Pipes
- 7.3 Modifying Ducts and Pipes
- Practice 7c Modify Ducts and Pipes

Lesson 8: Plumbing Systems

- 8.1 Adding Plumbing Fixtures and Equipment
- Practice 8a Add Plumbing Fixtures and Equipment
- 8.2 Adding Plumbing Pipes
- Practice 8b Add Plumbing Pipes
- 8.3 Modifying Plumbing Pipes
- Practice 8c Modify Plumbing Pipes
- 8.4 Adding Fire Protection Systems
- Practice 8d Add Fire Protection Systems

Lesson 9: Advanced Systems for HVAC and Plumbing

- 9.1 Creating and Modifying Systems
- Practice 9a Create and Modify HVAC Systems
- Practice 9b Create and Modify Plumbing Systems
- 9.2 Creating Automatic Layouts
- Practice 9c Create Automatic HVAC Layouts
- Practice 9d Create Automatic Plumbing Layouts
- 9.3 Testing Systems
- Practice 9e Review HVAC Systems
- Practice 9f Test Plumbing Systems

Lesson 10: Creating Construction Documents

- 10.1 Setting Up Sheets
- 10.2 Placing and Modifying Views on Sheets
- Practice 10a Create Construction Documents
- 10.3 Printing Sheets



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Lesson 11: Annotating Construction Documents

- 11.1 Working with Dimensions
- Practice 11a Work with Dimensions – Mechanical
- Practice 11b Work with Dimensions – Plumbing
- 11.2 Working with Text
- 11.3 Adding Detail Lines and Symbols
- Practice 11c Annotate Construction Documents
- Practice 11d Annotate Construction Documents – Mechanical
- Practice 11e Annotate Construction Documents – Plumbing
- 11.4 Creating Legends
- Practice 11f Create a Key Plan
- Practice 11g Create Legends – Mechanical
- Practice 11h Create Legends – Plumbing

Lesson 12: Adding Tags and Schedules

- 12.1 Adding Tags
- Practice 12a Add Tags – Mechanical
- Practice 12b Add Tags – Plumbing
- 12.2 Working with Schedules
- Practice 12c Work with Schedules Mechanical/Plumbing

Lesson 13: Creating Details

- 13.1 Setting Up Detail Views
- 13.2 Adding Detail Components
- 13.3 Annotating Details Practice 13a Create a Fire Damper Detail – Mechanical
- Practice 13b Create a Floor Drain Detail – Plumbing

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