Autodesk Revit MEP Essentials

Overview

The course has been designed to teach the concepts and principles of creating 3D parametric models of MEP systems from engineering design through construction documentation. It is intended to introduce students to the software's user interface and the basic HVAC, electrical and plumbing/piping components that make Revit MEP a powerful and flexible engineering modeling tool.

Prerequisites

No previous CAD experience is necessary, however before using this courseware the student should have working
knowledge of the following:

- Design, drafting or engineering principles
- Microsoft Windows XP, Microsoft Windows Vista, Microsoft Windows 7 or Microsoft Windows 8.

Available Exams and Certifications

- Autodesk Certified User (Click for More)
- Autodesk Certified Professional (Click for More)

Course Outline

Revit in a Nutshell

- Interactive exercise on creating systems, Mechanical and Electrical

Introducing Revit as a BIM tool

- What is BIM and what does it mean?
- The benefits of BIM What will BIM deliver?

- Industry drivers
- Introducing Levels of BIM
- Implications on team and workflow; fee and deliverables; contract and insurance issues

Project Navigation and View Creation

- Interactive session introducing the menu and screen layout
- Interrogating the model to extract views
    - Plans, sections and elevations
    - Displaced views, callouts and drafting views
    - 3D isometrics, perspectives and walkthrough movies
- Placement and properties of grids, levels and dimensions
- Introduction to basic
- Revit elements
- Exercise on creating levels, grids and using dimensions and scope boxes

Element Selection and Manipulation

- Interactive session introducing object selection methods
- Element properties and manipulation
- Instance and Type parameters
- Modify tools, Nodes and Snaps
- Exercise on basic editing tools, trim, offset, align, etc

Visibility Control and Categorisation

- Project-Wide Settings
- View Specific Overrides
- Element Specific Overrides
- Individual Line Overrides
- Exercise on modifying element visibility

Model Development Methodology

- Is BIM just about 3D?
- Information timeline and overload
- How a project develops from a base template
- The complexity of components
- Controlling graphical display

Establishing a Project

- Project units - Common, HVAC, Electrical and Piping
- MEP settings, symbols and schematic design
- Project commencement and collaboration
- Linking CAD and Revit Architecture
- Coordination review
- Exercise on linking a Revit Architecture model and using copy/monitor tools

Introduction to Building Elements

- Basic wall definitions, floors, roofs and ceilings
- Sketching rules and relating slabs to walls and supports
- Slab slopes, roof design and ceiling definition
- System family editing
- Column and beam placement
- Exercise on element placement techniques and developing a composite wall

Equipment, Fixtures and Fittings

- Family terminology
- Component placement
- Selecting the correct level - FFL, SSL, Floor Soffit and Ceiling Soffit
- MEP workflow
- Exercise on hosted elements, visibility controls and multi-storey design

Introducing Systems

- Setting up the project profile
- Main systems
    - Mechanical, Electrical and Piping
- System browser, connectors and other air systems
- Exercise on creating a system generated air supply layout

Basic Schedules and Legends

- Generation of tabular interrogations of the model
    - Scheduling Components
    - Style schedules
    - Legends
- Exercise on creating a schedule and legend

Mechanical Systems

- Mechanical settings
- Duct types and fittings
- Creating duct and piping systems Insulating and lining ductwork
- Plant and equipment
- Mechanical pipework, flanges and fittings
- Exercise on completing and checking a ventilation system

Electrical Systems and Circuits

- Equipment, devices and fixtures
- Wiring, cable tray and conduit modelling
- Circuits and switch systems
- Exercise on electrical service type filters and their use

Plumbing Systems

- Plumbing settings
- Plumbing fixtures
- Creating plumbing systems
- Creating sanitary systems
- Domestic hot and cold water systems
- System browser
- Exercise on creating a sanitary system, a piping system and a system type filter

Spaces, Zones, Areas and Volumes

- Differentiate between spaces, zones, areas and volumes
- Defining spaces, bounding elements, tags and schedules
- Computation for areas and volumes
- Using space data outside of Revit
- Colour schemes and legends
- Exercise on creating and manipulating spaces

2D Draughting and Annotation

- Introducing annotation tools and component categories
- Detail component libraries
- Repeating details
- Lines and arcs
- Text, Tags and keynotes
- Exercise on generating and annotating a construction detail

Sheet Compilation and Publication

- Project browser organisation – WIP and Publish
- Creating and populating sheets
- Working with schedules
- Publishing and document management

Basic Subdivision and Collaboration

- Introducing a BIM Strategy
- Document Model management
- Project team collaboration techniques
- Transmittal and model issue protocols
- Basics of large-model sub-division
- Exercise on worksets and task allocation

Introduction to the Principles of Family Editing

- The basic process 10 stages for trouble-free family creation
- Exercise on defining a fully parametric mechanical component