BIM Course MEP

BIM ENGINEERS
BIM TRAINING & CONSULTANT

Course Description

The BIM MEP course in Autodesk Revit is a comprehensive training program that covers all aspects of using the software for MEP engineering projects. The course starts with the basics of creating and editing MEP systems such as ductwork, piping, and electrical wiring. It then progresses to more advanced topics such as energy analysis, lighting analysis, and system coordination. By the end of the course, you will have a solid understanding of how to use Revit to create detailed MEP models and optimize building performance.

One of the benefits of using Autodesk Revit for MEP projects is the ability to streamline the design process and reduce errors by using intelligent, datadriven models. With Revit, you can easily collaborate with other design professionals to ensure a smooth construction process. You can also share your models with contractors and engineers to ensure that everyone is on the same page. Whether you are an architect, engineer, contractor, or building owner, this course will provide you with the skills and knowledge needed to use Autodesk Revit for MEP engineering projects and create detailed models with confidence.

Prerequisite

Basic computer skills and familiarity with the drafting standards.

NOTE:

This course is presented in an online format. No printed materials are provided.

Instructional Methodology

This course is a selfguided online course. Students have 60 days to complete the curriculum, but may work at their own pace throughout the course. Lessons are presented in written format, video format and have a handson assignment at the end of each learning module.

Course Content

2. BIM Theory

- ❖ Understanding what is BIM
- ❖ How to use BIM
- ❖ BIM Standards and implmentation

3. Mastering the Autodesk Revit:

1.Initial Setup of Revit file Every BIM Engineer(MEP) should know This is where we start in Revit

- ❖ User interface Understanding the Language of Revit
- ❖ Template selection Which platform of Revit should you use.
- ❖ Linking the revit file Initial coordination with other Discipline(Architecture, Structure, Landscape Etc.)
- ❖ copy/ monitor How to use the Foreign file in our own enviornment
- ❖ Generating views Setting up the work
- ❖ Managing the link Various reaction to the action taken by other discipline
- ❖ Link/ Import option Coordination work with other discipline
- ❖ Space creation Identifying the enviornment of working
- ❖ Zone creation Identifying the enviornment of working
- ❖ Heating/Cooling load calculatio HVAC Design Calculation in Revit
- ❖ Settings All kind of setting e.g. Unit, Transfer project standard, purge file and many more
- ❖ Modify tools Copy, Move, Mirror, Split, Alligm, Array, clipboard, and many more

2. Modeling MEP Model Creation

1. Mechanical (HVAC) Design Modeling work:

- ❖ Air terminal selection

- ❖ Duct types

- ❖ Duct routing Automatic and Manual

- ❖ Routing preference in duct

- ❖ Duct fitting

- ❖ Duct Accessories

- ❖ Duct placeholder

- ❖ Flex Duct

- ❖ Creating new duct system type

- ❖ Mechanical settings

- ❖ Mechanical equipment's selection AHU, FCU, Chiller, Cooling tower etc.

- ❖ Various Connection Types between duct and other Mechanical Equipment

- ❖ VIsibility graphics and its management

- ❖ Filter

- ❖ View Templates

- ❖ Model display

- ❖ Duct Legend

- ❖ Duct pressure Loss report creation

- ❖ Check Duct system

- ❖ check Diconnects

- ❖ Duct sizing

- ❖ Duct insulation

- ❖ System analysis

3.2.2.Mechanical (HVAC, Piping Fire Fighting,Gas and Plumbing) Design Modeling work:

- ❖ Understanding Pipe Type

- ❖ Understanding Pipe system type and its creation

- ❖ Pipe routing creation Manual, Automatic

- ❖ Understanding Pipe fitting

- ❖ Understanding Pipe Accessories

- ❖ Understanding Pipe placeholder Modeling

- ❖ Understanding Flex Pipe

- ❖ Pipe material creation

- ❖ Chilled water piping and other HVAC pipe system creation

- ❖ Connection of piping with various Mechanical Equipment

- ❖ Pipe Legend

- ❖ Pipe pressure Loss report creation

- ❖ Check Pipe system

- ❖ check Diconnects

- ❖ Pipe sizing

- ❖ Plumbing Fixture

- ❖ Creating Domestic cold water, Hot water and drainage piping

- ❖ Pipe slope

- ❖ Pipe insulation

- ❖ Sprinkler and piping system

- ❖ fire hose cabinet and piping

- ❖ Fire hydrant etc

- ❖ pumps and piping

- ❖ Fire department connection

3.2.3.Electrical Design Modeling work:

- ❖ Electrical devices: Electrical fixtures, sockets, fire alarm devices, switches, communication

devices, Access control devices, security devices

- ❖ lighting, lighting lux analysis, artifical

- ❖ Electrical equipment Electrical Panel , Fire alarm panel, Power panel , transformer, generator

- ❖ Power cicuit creation, lighting circuit creation, fire alarm panel connection

- ❖ creating panel schedule and creating its template, modifying template

- ❖ system browser

- ❖ wire length

- ❖ wire creation

- ❖ LV panel to HV panel

- ❖ Electrical setting

- ❖ conduits modeling

- ❖ conduit fitting

- ❖ conduit connection with panel

- ❖ Cable tray

- ❖ cable tray fittings

- ❖ Revit Expertise/ Advance Which Everyone should know:

3.2.4. Family creation:

- ❖ Understanding Families

- ❖ Creating various types of parametric families

- ❖ using Formulas in various families

- ❖ Creating AHU

- ❖ Creating Various types of Mechanical component

- ❖ lighting equipment families

- ❖ Understanding various types of MEP connector

❖ Nested families

❖ Face based families

❖ Line Best Families

3.2.5.Understanding Various types of parameters

❖ Project parameter

❖ Shared parameter

❖ Family parameter

❖ Global Parameter

3.2.6. Understanding the various coordinates system in Revit

❖ Internal origin

❖ Project base point

❖ Survey Point

7.   Genrating Schedule, quantities extraction of Revit model

8.   Annotations Tags, Dimensions.

9.fabrication module Duct fabrication, pipe fabrication,spool creation, fabrication drawing details etc

10.Documentation Sheet creations, Title block creation, legend creation, keynote, walk through, camera views, section detail, Scope box,view referenec, call out, detail line etc.

Autodesk Navisworks Manage Syllabus

Course Description:
This Autodesk Navisworks for BIM MEP online course provides an overview of the essential features of Navisworks, a project review software that is widely used in the construction industry for BIM (Building Information Modelling) MEP projects. Through a series of interactive lectures, demonstrations, and exercises, students will gain an understanding of how Navisworks can be used to detect clashes, simulate timelines, and visualize walkthroughs.

Course Objectives:
The course begins with an introduction to Navisworks and its user interface, followed by an overview of how to navigate 3D models. Students will learn how to select and manipulate objects, adjust the camera view, and use the measurement tools. The course will also cover the concept of selection sets versus search sets, and how to use these tools effectively.

Class Outline and Topics:

Outline	Topics
Introduction	Overview Workspaces Navisworks Options Opening, Appending & Merging Files File Types, Saving, Exporting and Publishing Projects Navigation Tools, Viewpoints, Object Properties Selection Tree and Selection Sets Object Selection, hiding and un-hiding Enable Sectioning (plane and section box) Model Review: Measuring, Tagging, Comments and Redlining Exporting NWD files for archiving and Freedom Viewer
Animator	Creating an Camera Animation Manipulating views, Animation Edit Exporting Animation videos

Outline	Topics
Clash Detection	Creating Search Sets
	Clash Detection Setup
	Creating and Exporting Clash Tests
	Setting Rules, Selecting Search Sets, Setting Tolerances
	Running Tests & Analyzing Clash Results
	Exporting Clash Reports (HTML Tabular format)
Timeliner	Opening and running a Timeline Simulation
	Creating Search Sets
	Establishing Tasks
	Assigning Tasks to model elements
	Linking Project Schedules
	Configuring Tasks Types
	Analyzing the Gantt View
	Timeliner Simulation Settings
	Exporting a Timeliner Animation

The second part of the course focuses on clash detection, which is one of the most important features of Navisworks. Students will learn how to set up clash tests, interpret the results, and resolve issues. The course will also cover how to create and use viewpoints, and how to produce 3D animations of the project walkthrough.

The third part of the course focuses on the timeline simulation and phasing. Students will learn how to create and manage construction schedules, use the time-liner tool, and visualize the construction process in a chronological sequence. The course will also cover how to use Navisworks with other BIM tools such as Revit and AutoCAD.

Upon completion of the course, students will be able to use Navisworks to explore and review BIM MEP models, detect and resolve clashes, simulate construction schedules, and create walkthroughs visualizations. This course is suitable for engineers, architects, contractors, and other construction professionals who are involved in BIM MEP projects.

- ❖ User Interface
- ❖ Creating NWC files, NWF and NWD Files
- ❖ Navigation Tools
- ❖ Review Tools
- ❖ Clash Detection
- ❖ Animator
- ❖ Walkthrough
- ❖ Sectioning Tools
- ❖ Timeliner
- ❖ Switchback with Revit
- ❖ Working with Views
- ❖ Quantification

BIM Collaboration Tool introduction such as BIM 360 will be introduced. Additional session on Dynamo will also be introduced.

Dynamo for Revit Fundamentals Syllabus

Course Description :

Dynamo is a powerful BIM connected Computational Design tool. With access to the Revit Application Programming Interface(API), Dynamo allows you to perform repetitive and more advanced functions within Revit. Learning Dynamo is a great way for creating new opportunities to transform your business, offer new services, and enhance the over all quality of your projects. From exploring design alternatives to rule based system rationalization to automating repetitive tasks, Dynamo will play an important role in your AEC workflows. Dynamo's usefulness extends from Architectural Programming to Building Performance Analysis, Simulation, Construction Means and Methods, as well as Process Automation. This course introduces the student to the fundamentals of Dynamo with hands on exercises providing practical examples everyone can exploit in their work.

Course Objectives:

❖ Understand the role of Computational Design & Visual Programming in the AEC Process

❖ Explore Key uses for Dynamo

❖ Learn about Dynamo integration with Revit

❖ Create basic Dynamo Scripts

❖ Use the Dynamo Player on real-world projects.