Autodesk Master BIM Professional Course

Target Audience

This course is designed for civil engineers, BIM coordinators, project managers, and construction professionals who want to gain comprehensive proficiency in BIM processes, tools, and industry workflows. It is ideal for those looking to implement BIM standards, manage information models, and lead multi-discipline coordination using Revit, Navisworks, Dynamo, and Autodesk Construction Cloud.

Course Objective

To equip civil engineers and construction professionals with advanced BIM skills — covering information modelling, ISO 19650 compliance, model-based coordination, and digital workflows — enabling them to deliver projects efficiently, collaboratively, and in alignment with international BIM standards.

Course Outcome

After completing this course, learners will be able to create and manage BIM models using Revit, coordinate multi-discipline projects with Navisworks and Autodesk Forma ,Civil 3D, implement ISO 19650 information management processes, automate workflows with Dynamo, and apply industry-standard BIM practices across the full project lifecycle.

Course Outline: The course comprises **80-hours** of theory and demonstrations and is divided into **11** different chapters. Each chapter is designed with practical examples and guided exercises to reinforce learning and ensure a strong understanding of BIM concepts and real-world civil engineering workflows.

Chapter 1: Introduction to BIM

- Welcome to the Course
- Overview of BIM Concepts and Industry Applications
- BIM Maturity Levels and Digital Transformation
- Tools and Software Overview (Revit, Navisworks, Autodesk forma, Dynamo)
- **Practice Exercises**

Chapter 2: ISO 19650 – Stages of Information Process in AEC

- ISO 19650 Overview and Key Principles
- Information Requirements: OIR, AIR, EIR and PIR
- BIM Execution Plan (BEP) Fundamentals
- Information Delivery Milestones and CDE Integration
- Roles and Responsibilities in ISO 19650 Workflows
- **Practice Exercises**

Chapter 3: Introduction to Information Modelling

- Bluebeam Revu Fundamentals: Markup, Measure and Collaboration
- Revit Basics: Interface, Navigation and Tools
- Revit Basics: Project Setup for Civil Engineers
- Understanding Revit Views, Levels and Grids
- Linking and Importing Files (CAD, IFC, RVT)
- Revit Hierarchy: Projects, Views and Families
- Working with System Families and Loadable Families
- Revit Parameters: Instance, Type and Shared Parameters
- **Practice Exercises**

Chapter 4: Revit Architecture Modelling

- Architectural Modelling Basics: Walls, Doors, Windows and Roofs
- Room Bounding, Room Tagging and Area Calculations
- Topography and Site Design Tools
- Landscape Modelling and Site Elements
- Parametric Family Creation for Architectural Components

- **Practice Exercises**

Chapter 5: Advanced Modelling – Concrete & Rebar Modelling

- Concrete Modelling 101: Foundations, Columns and Beams
- Concrete Modelling 102: Slabs, Walls and Complex Geometry
- Material Assignments and Structural Properties
- Rebar Modelling 101: Basic Reinforcement Placement and Coverage
- Introduction to Revit Schedules: Types and Configuration
- Schedules and Quantity Takeoff: Material and Element Quantification
- **Practice Exercises**

Chapter 6 : Introduction To MEP

- What is Revit MEP?
- Overview of MEP (Mechanical, Electrical, Plumbing)
- Role of MEP in BIM Projects
- Revit Interface for MEP
- Difference between Architecture, Structure & MEP in Revit
- Starting a New MEP Project
- Introduction to HVAC in Revit
- Creating Duct Systems
- Introduction to Electrical Modeling
- Placing Lighting Fixtures
- Introduction to Plumbing in Revit
- Creating Pipe Systems

Chapter 7: Documentation & Presentation of BIM Model and Information Management – Annotations, Detailing & Sheets

- Revit Views: Floor Plans, Sections, Elevations and 3D Views
- Revit Views: Visibility / Graphics Overrides and View Templates
- Annotations and Dimensioning Best Practices
- 2D Detailing with Revit and Legends Creation
- Rendering and Visualization Techniques
- Advanced Techniques of Annotations and Detailing
- Revit Sheet Components: Title Blocks and Viewports
- Sheet Management, Revision Control and Optimization
- Printing and Exporting Drawings (PDF, DWG, IFC)
- **Practice Exercises**

Chapter 8: Physical & Cloud Worksharing with CDE

- Introduction to Autodesk Forma
- Revit Worksharing: Central Files, Local Files and Sync
- Autodesk forma: Design Collaboration, Issue Tracking and Insights
- Common Data Environment (CDE) Setup and Management
- Access Control, Permissions and Model Publishing
- **Practice Exercises**

Chapter 9: Model-Based Clash Coordination

- Collaboration and Multidisciplinary BIM Workflows
- Introduction to Navisworks: Interface and Navigation
- Clash Detection in Navisworks: Hard, Soft and Clearance Clashes
- Coordination with External Models (IFC, NWC, DWG)
- Visualization and Simulation Techniques for Coordination Reviews
- BIM Track Add-in Integration for Issue Management
- **Practice Exercises**

Chapter 10: Dynamo for Civil Engineers

- Introduction to Dynamo: Visual Programming Interface
- Dynamo Data Manipulation: Lists, Nodes and Logic
- Dynamo and Revit Connection: Automating Repetitive Tasks
- Advanced Dynamo Topics: Custom Scripts and Packages
- Practical Applications: Automated Tagging, Renaming and Data Export

- **Practice Exercises**

Chapter 11: Introduction to Civil 3D - BIM for Infrastructure

- Fundamentals of Civil 3D
- Points, Parcels and Pipe Network
- Surface and Alignment
- Alignment, profiles and Introduction to subassembly
- BIM for Infrastructure 102 - Civil 3D + Revit
  Practice Exercises