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# Architectural Modelling with BIM Management Essentials

## Course Description

This course provides a comprehensive foundation in Building Information Modelling (BIM) and its integration with digital transformation, Industry 4.0, and global standards. Participants will learn BIM concepts, levels of maturity, standards (ISO 19650), and document management strategies, followed by practical training in Autodesk Revit Architecture for architectural modelling, parametric design, visualization, and collaboration. The course bridges BIM management principles with hands-on Revit practices to prepare learners for real-world AEC projects.

## Audience Profile

- Architects, designers, engineers, and project managers in the AEC industry
- BIM coordinators, BIM managers, and digital transformation professionals
- Students and beginners aiming to learn BIM concepts and Revit modelling
- Professionals transitioning from CAD to BIM workflows

## Prerequisites

- Basic knowledge of architecture or construction industry workflows
- Familiarity with computers and design software (CAD exposure beneficial, not mandatory)

## Course Objectives

By the end of this course, participants will be able to:

- Understand BIM fundamentals, terminology, dimensions, maturity levels, and benefits
- Apply Industry 4.0 and digital transformation concepts within construction workflows
- Implement BIM standards, ISO 19650 requirements, and document naming strategies
- Create and manage BIM models using Autodesk Revit Architecture
- Design and document architectural components including walls, roofs, floors, stairs, and families
- Collaborate effectively on BIM projects with linked files, worksets, and scheduling tools
- Produce high-quality drawings, legends, and renderings for project delivery

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### **Module 1: Building Information Modelling (BIM) & Digital Transformation**

- Building Information Modelling (BIM)
- Digital Transformation
- Digital Transformation in the Construction Industry
- Advantages of Digital Transformation
- Challenges in Digital Transformation

### **Module 2: Industry 4.0 in AEC**

- Concepts & Principles of Industry 4.0
- Impact on AEC Industry

### **Module 3: BIM Fundamentals**

- Introduction to BIM
- Uses & Benefits of BIM
- Components of BIM
- BIM Terminology

### **Module 4: BIM Dimensions**

- 3D, 4D, 5D, 6D, 7D, 8D, 9D & 10D BIM
- Evolution of BIM Dimensions

### **Module 5: BIM Maturity Levels**

- Level 0, 1, 2, 3
- Benefits of Implementing BIM Levels

### **Module 6: RIBA Plan of Work**

- Stages of RIBA Plan of Work

### **Module 7: Level of Development (LOD)**

- Introduction to LODs
- LOD 100, 200, 300, 350, 400, 500
- LOD & LOIN
- Importance of LOD in AEC Industry
- Benefits of Adopting LOD in BIM-based Projects

### **Module 8: Information Requirements & Delivery Plans**

- Organisational Information Requirements (OIR)
- Asset Information Requirements (AIR)
- Project Information Requirements (PIR)
- Master Information Delivery Plan (MIDP)
- Task Information Delivery Plan (TIDP)

### **Module 9: BIM Standards & ISO 19650**

- Various BIM Standards
- Importance of ISO 19650
- ISO 19650 Part 1 – Concepts & Principles
- ISO 19650 Part 2 – Delivery Phase of Assets
- ISO 19650 Part 3 – Operational Phase of Assets
- ISO 19650 Part 4 – Information Exchange
- ISO 19650 Part 5 – Security-minded Approach in Information Management

### **Module 10: Document Naming & Classification**

- Document Naming Strategy
- Structure of Naming
- Rules for Naming Conventions
- Classification of Categories
- OmniClass – Elements by Function, Elements by Form, Products
- UniClass – Systems, Elements/Functions

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### **Module 11: Autodesk Revit Architecture – Essentials**

- Introduction
- Revit File Types: Project, Project Templates, Families
- Project Units
- Levels: Adding, Modifying, Creating Level Head, Constraining Levels

### **Module 12: Modelling Core Elements**

- Walls: Creation, Layers & Materials
- Curtain Walls, Grids & Mullions
- Editing Curtain Walls
- Wall Sweeps & Reveals
- Split Walls & Wall Openings
- Doors & Windows Placement
- Floors & Ceilings
- Roof by Footprint & Extrusion

### **Module 13: Views & Visualization**

- 3D Interface
- Visibility/Graphics
- View Range
- Overlay
- Sectional Views
- Color Schema
- Section Box
- Sun Path & Solar Study

### **Module 14: Structural & Circulation Elements**

- Horizontal & Vertical Grids Creation
- Columns & Footings
- Ramp, Staircase & Railing

### **Module 15: Detailing & Documentation**

- Dimensions & Text
- Detailing of Components
- Tags & Keynotes
- Door & Window Legends
- Sheet Creation
- View Management in Sheets
- Scheduling & Quantities

### **Module 16: Families & Parametric Modelling**

- Loadable Components
- In-Place Components
- Extrude, Blend, Sweep
- Revolve, Swept Blend
- Void Forms
- Families Creation
- Parametric Modelling
- Massing
- X-ray
- Adding Profiles & Edges

### **Module 17: Site & Collaboration**

- Site & Site Settings
- Subdivide & Building Pad (Excavate)
- Linking Files to Revit Project
- Collaboration

- Copy/Monitor
- View Templates & WorkSets Creation

**Module 18: Rendering & Presentation**

- Material Override
- Hide in View
- Rendering (Interior & Exterior)