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# BIM MODELLING (THE BASICS)
# COURSE OUTLINE

| NO. | TOPICS | LEARNING OUTCOME |
|---|---|---|
| | **PART 1: THE BASICS** | |
| **1.** | **Introduction to BIM** | |
| 1.1. | What is BIM? | To understand the relation between BIM & construction life cycle. |
| 1.2. | What is Revit? | To understand that Revit is not the only BIM software. |
| 1.3. | BIM vs Autodesk Revit | To understand that BIM is a process, not a software. |
| 1.4. | Construction Life Cycle | To understand how BIM supports the construction life cycle of a project. |
| 1.5. | Level of Development | To relate level of detail follows the construction lifecycle. |
| 1.6. | Construction Life Cycle vs Level of Development | To understand the relation between CLC & LOD. |
| 1.7. | Typical Modelling Process | To understand the typical modelling process when a project starts. |
| 1.8. | Typical Modelling Process vs Construction Life Cycle | To understand the relation between modelling process & CLC. |
| 1.9. | Typical Modelling Process vs Level of Development | To understand the relation between modelling process & LOD. |
| 1.10. | Construction Project Types | To understand the difference in modelling flow in different project types |
| **2.** | **Revit Interface** | |
| 2.1. | Navigation | To demonstrate zoom, pan and rotate. |
| 2.2. | Revit Interface Overview | To recognise the interface of Revit. |
| 2.3. | Properties | To demonstrate changing components and editing component properties. |
| 2.4. | Project Browser | To navigate to all views and understand their definitons |
| 2.5. | View Control | To practise changing settings of the view controls. |
| 2.6. | Ribbon | To understand the different segments of the Ribbon |
| 2.7. | Selection Control | To understand the different type of selection. |
| 2.8. | Quick Access | To understand most used commands in the quick access tool bar |
| **3.** | **General Commands** | |
| 3.1. | 3D View | To go to 3D view using Quick Acess or double clicking in Project Browser. |
| 3.2. | Select | To demostrate 3 types of selection. |
| 3.3. | Move | To perform move using move command and hold/drag method. |
| 3.4. | Selection Control | To perform selections using selection controls. |
| 3.5. | Pin & Un-pin | To perform pining and un-pinning on element or component. |
| 3.6. | Copy | To perform copying using the copy command. |
| 3.7. | Copy & Paste | To perform copy and paste from one view to another. |
| 3.8. | Align | To perform alignment of 2 objects. |
| 3.9. | Mirror | To perform Axis mirroring and Draw Axis mirroring. |
| 3.10. | Trim & Extend | To perform trim/extend for all disciplines. |
| 3.11. | Split Element | To perform splitting of elements for all disciplines. |
| 3.12. | Family Components | To understand the hierachy of a family and hosting differences. |
| 3.13. | Loading Family Components | To perform loading of family using Direct and Opening. |
| 3.14. | Inserting Family Components | To perform inserting component. |
| 3.15. | Loading Autodesk Components | To perform loading of family using Autodesk Library |
| 3.16. | Rotate | To perform manual rotate and spacebar rotate. |
| 3.17. | Filter Selection | To perform filter selection of all columns in the box. |
| 3.18. | View Range | To understand view range and perform adjustment of cut plane. |
| 3.19. | Visibility Graphics | To understand visibility graphics and perform adjustment of any category. |
| 3.20. | Section | To cut a section and enter the view. |
| 3.21. | Section Box | To create and adjust section box. |
| 3.22. | Drawing Tools | To recollect drawing tools from AutoCAD. |
| **4.** | **Starting a Project** | |
| 4.1. | Project Requirements | To understand what to look out for in a project. |
| 4.2. | Starting a New project Process | To remember the typical steps to start a project. |
| 4.3. | Project Templates | To understand what are the use of templates. |
| 4.4. | Coordinates | To execute linking of AutoCAD and moving of Project Base Point. |
| 4.5. | Elevation | To create 3 elevations with correct orientation. |
| 4.6. | Levels | To create 3 levels dimensioned accordingly to reference and their plans. |
| 4.7. | Gridlines | To execute drawing, grouping and positioning of gridlines. |
| 4.8. | Cleaning Up | To clean up by adjusting view range, gridlines, levels and setting scale. |

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# BIM MODELLING (STRUCTURAL) COURSE OUTLINE

| NO. | TOPICS | LEARNING OUTCOME |
|---|---|---|
| | **PART 2: STRUCTURAL** | |
| **1.** | **Designs** | |
| 1.1. | Introduction | To understand the relation between designers and modellers. |
| 1.2. | Linking CAD | To execute linking of AutoCAD Design Drawings |
| **2.** | **Modelling** | |
| 2.1. | Creating 3D View | To create 3D view for visual checking. |
| 2.2. | Concrete Columns | To create, place and duplicate concrete columns according to requirement. |
| 2.3. | Steel Columns | To create, place and duplicate steel columns according to requirement. |
| 2.4. | Pedestals | To use column for Pedestals creation and adjust offset. |
| 2.5. | Foundations (Piles & PileCap) | To create a piling plan and place foundations according to requirement. |
| 2.6. | Concrete Beams | To create and place concrete beams using column as reference. |
| 2.7. | Steel Beams | To create and place steel beams using justification. |
| 2.8. | Beam System | To create a new beam system horizontally and vertically. |
| 2.9. | Sloped Beams | To adjust offsets of beams and columns to create a sloped beam. |
| 2.10. | Braces | To place braces using 3D view. |
| 2.11. | Trusses | To load and place a howe flat truss to support a flat roof. |
| 2.12. | Weld Connections | To execute 3 common type of weld connections |
| 2.13. | Bolt Connections | To execute 3 common type of bolt connections |
| 2.14. | Floors | To create and model Structural floors with holes. |
| 2.15. | Walls | To create and insert Structural Wall. |
| 2.16. | Ramp | To calculate gradient, set and place ramp. |
| 2.17. | Stairs | To place staircase with landing according to requirement. |
| 2.18. | Openings | To create shaft, wall and steel member openings |
| 2.19. | Rebars | To place rebars using manual and area rebar. |
| 2.20. | Modifying Rebars | To extend and add hooks to rebars. |