CAD Drafting Singapore Pte Ltd
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BIM MODELLING BASIC (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.
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.	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.	Pin & Un-pin	To perform pining and un-pinning on element or component.
3.5.	Copy	To perform copying using the copy command.
3.6.	Trim & Extend	To perform trim/extend for all disciplines.
3.7.	Family Components	To understand the hierachy of a family and hosting differences.
3.8.	Loading Family Components	To perform loading of family using Direct and Opening.
3.9.	Inserting Family Components	To perform inserting component.
3.10.	Loading Autodesk Components	To perform loading of family using Autodesk Library
3.11.	Rotate	To perform manual rotate and spacebar rotate.
3.12.	Filter Selection	To perform filter selection of all columns in the box.
3.13.	Visibility Graphics	To understand visibility graphics and perform adjustment of any category.
3.14.	Section	To cut a section and enter the view.
3.15.	Section Box	To create and adjust section box.
3.16.	Drawing Tools	To recollect drawing tools from AutoCAD.
4.	**Starting a Project**	
4.1.	Starting a New project Process	To remember the typical steps to start a project.
4.2.	Project Templates	To understand what are the use of templates and prepare template files
4.3.	Coordinates	To execute moving of Project Base Point.
4.4.	Elevation	To create 3 elevations with correct orientation.
4.5.	Levels	To create 3 levels dimensioned accordingly to reference and their plans.
4.6.	Gridlines	To execute drawing, grouping and positioning of gridlines.
4.7.	Cleaning Up	To clean up by adjusting view range, gridlines, levels and setting scale.

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BIM MODELLING BASIC (ARCHITECTURAL & STRUCTURAL) COURSE OUTLINE

NO.	TOPICS	LEARNING OUTCOME
	PART 2: ARCHITECTURAL	
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.	Architectural Columns	To create and place column according to required size.
2.2.	Architectural Walls	To create walls according to required thickness.
2.3.	Architectural Floor	To create floor and dropped floor according to required thickness.
2.4.	Doors	To place doors on walls and flip them to the correct position.
2.5.	Windows	To place windows on walls and adjust visibility using view range.
2.6.	Ceiling	To create new ceiling and place in required rooms.
2.7.	Staircase	To place staircase, landing and modify settings.
2.8.	Railing	To place railing and modify it's settings.
2.9.	Roof	To model a flat and a sloped roof.
2.10.	Room	To place rooms and adjust room limits.
	PART 3: 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.	Structural Column	To create, place and duplicate columns according to requirement.
2.2.	Foundations (Piles & PileCap)	To create a piling plan and place foundations according to requirement.
2.3.	Structural Beams	To create and place beams using column as reference.
2.4.	Beam System	To create a new beam system horizontally and vertically.
2.5.	Sloped Beams	To adjust offsets of beams and columns to create a sloped beam.
2.6.	Floors	To create and model Structural floors.
2.7.	Walls	To create and insert Structural Wall.
2.8.	Ramp	To calculate gradient, set and place ramp.
2.9.	Openings	To create shaft & wall openings

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BIM MODELLING BASIC (MEP)
COURSE OUTLINE

NO.	TOPICS	LEARNING OUTCOME
	PART 4: MEP	
1.	**Designs**	
1.1.	Introduction	To understand why are designs important to start modelling.
1.2.	Base (Control) Model	To understand the need to prepare model for model splitting.
1.3.	Base Model - Linking Revit	To execute linking of Architectural Model using Project Base Point.
1.4.	Base Model - Working Section View	To create a horizontal and vertical working section view.
1.5.	Base Model - Splitting	To split base model into Electrical, ACMV and Plumbing/Sanitary system.
1.6.	Linking CAD	To execute linking of AutoCAD Design Drawings
2.	**Modelling**	
2.1.	**Electrical Modelling**	
2.1.1.	Typical Electrical Modelling Process	To understand and follow through the process of electrical modelling.
2.1.2.	Loading Electrical Components/Families	To load custom and generic components/families.
2.1.3.	Placing Electrical Components/Families	To execute placing electrical devices and fixtures on relevant hosts.
2.1.4.	Cable Tray Fitting	To load from Autodesk Library and assign all fittings to Cable Tray.
2.1.5.	Cable Tray Routing	To place horizontal and vertical cable tray routing.
2.1.6.	Conduit Fitting	To load from Autodesk Library and assign all fittings to Conduit.
2.1.7.	Conduit Routing	To place horizontal and vertical conduit routing.
2.2.	**ACMV Modelling**	
2.2.1.	Typical ACMV Modelling Process	To understand and follow through the process of ACMV modelling.
2.2.2.	Loading Mechanical Components/Families	To load custom and generic components/families.
2.2.3.	Placing Mechanical Components/Families	To execute placing machanical equipment using elevation offset.
2.2.4	Duct Fittings	To load from Autodesk Library and assign all fittings to Ducts.
2.2.5.	Duct Routing	To place horizontal and vertical duct routing.
2.2.6.	Flexible Duct Connections	To use flexible duct for connection between equipment and duct.
2.2.7.	Rigid Duct Connections	To use rigid duct for connection between equipment and duct.
2.3.	**Plumbing & Sanitary Modelling**	
2.3.1.	Typical P&S Modelling Process	To understand and follow through the process of P&S modelling.
2.3.2.	Loading Plumbing Components/Families	To load custom and generic components/families.
2.3.3.	Placing Plumbing Components/Families	To execute placing plumbing equipment on relevant hosts.
2.3.4.	Pipe Fittings	To load from Autodesk Library and assign all fittings to created pipes.
2.3.5.	Pipe Routing	To place horizontal and vertical pipe routing.
2.3.6.	Automatic Pipe Connections	To connect pipes using Connect Into.
2.3.7.	Solving Clashes	To identify problem and create solution for clashes.
2.4.	**Combine Model**	
2.4.1.	Link Revit	To link MEP models using Project Base Point.
2.4.2.	Visibility Graphics of Linked Revit	To hide elements that are unnecessary from a linked model.