CAD Drafting Singapore Pte Ltd
Web: https://caddraftingsingapore.com
Email: courses@caddraftingsingapore.com
Contact: +65 9157 3363

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 (MEP)
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NO.	TOPICS	LEARNING OUTCOME
	PART 2: 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 - Spaces	To place spaces manually and automatically to sync with Architectural Rooms.
1.5.	Base Model - Working Section View	To create a horizontal and vertical working section view.
1.6.	Base Model - Working 3D View	To create a working 3D view.
1.7.	Base Model - Scale	To set scale using single view method and multiple view method.
1.8.	Base Model - Splitting	To split base model into Electrical, ACMV and Plumbing/Sanitary system.
1.9.	AutoCAD Designs	To understand how does design intend converts to Revit.
1.10.	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 routing while avoiding clashes.
2.1.6.	Conduit Fitting	To load from Autodesk Library and assign all fittings to Conduit.
2.1.7.	Conduit Routing & Clash Solving	To place horizontal and vertical routing while avoiding clashes.
2.1.8.	Conduit Bend Radius	To adjust minimal bending radius and apply changes to all fittings.
2.1.9.	Parallel Conduits	To create new conduits that are parallel to existing conduits automatically.
2.1.10.	Circuit Introduction	To understand the use of connections and their requirement.
2.1.11.	Circuit Presets - Distribution System	To create a 230/400V distribution system.
2.1.12.	Circuit Presets - Setting Voltage	To check and edit all fixtures/equipments are using the correct voltage.
2.1.13.	Power Circuit Systems	To create system and assign all components to Distribution Board.
2.1.14.	Switch Circuit Systems	To create system and assign all components to Switches.
2.1.15.	Distribution Panel Schedule	To create a panel schedule using basic template.
2.2.	**ACMV Modelling**	
2.2.1.	Typical Electrical 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.	Duplicating Mechanical Components/Families	To duplicate existing family and change the parameters.
2.2.5.	Duct Fittings	To load from Autodesk Library and assign all fittings to Ducts.
2.2.6.	Duct Routing & Clash Solving	To place horizontal and vertical routing while avoiding clashes.
2.2.7.	Flexible Duct Connections	To use flexible duct for connection between equipment and duct.
2.2.8.	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 & Clash Solving	To place horizontal and vertical routing while avoiding clashes.
2.3.6.	Automatic Pipe Connections	To connect pipes using Connect Into.
2.3.7.	Valves	To load and place valves directly on to pipes.
2.3.8.	Tees	To add or remove pipes for Tee Joints.
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.