GOVERNMENT OF TAMILNADU

DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI-25

STATE PROJECT COORDINATION UNIT

(Established under Canada India Institutional Cooperation Project)

CURRICULUM

Course Name	REVIT ARCHITECTURE
Course Code	**AA/2020/004**
Course Duration	40 Hours
Minimum Eligibility Criteria and Pre-requisites (if any)	10TH STD & Above
Course Objectives	• The objective of the Autodesk Revit Architecture course is to enable participants to create a full 3D architectural project model, including walls, doors, windows, components, floors, ceilings, roofs, and stairs, using the basic tools that the majority of architectural users need.
Course Outcomes	At the end of training, the participants will be able to • Describe building information modeling, bi-directional relationships in Revit. • Understand the user interface, parametric objects, families and start projects using templates. • Create and modify levels, grids. • Create a basic floor plan, add and modify walls and work with doors and windows. • Work with component families. • Duplicate and manage views, control object visibility in views, like creating elevation, section, and 3D views. • Create floors, ceilings, add roofs, curtain walls, work with stairs and railings in a building model.
Expected Job Roles	Drafting & Design Assistant in various Architecture Firms.

TEACHING AND SCHEME OF EXAMINATION						
Course Code	**Course Name**	**Hours**		**Assessment Marks**		**Duration of Examination**
				Min	**Max**	
AA/2020/004	**Revit Architecture**	Theory	16	10	20	3 Hours
		Practical	24	40	80	
		Total	40	50	100	

AA/2020/004 - REVIT ARCHITECTURE

DETAILED SYLLABUS

Unit No	Modules	No of Hours Theory / Practical	
I	**Introduction To Revit Architecture**	**06 Hours**	
1.1	Introduction, About BIM, Revit file types: Understanding Project, Project Templates, Families, GUI, Building Elements Starting a New project, Drawing Aids: Alignment Lines, Snaps and Project Units Levels Grids : Adding Grids, Editing Grid and Bubbles	3	3
1.2	Walls: Creating and modifying Walls, Create New Wall type, Location Line, Wall joins, Add Partition Wall, Wall layer wrapping Understanding Stacked Wall, Creating Stacked Wall, Guidelines for Creating Stacked Walls and compound Wall		
1.3	Wall shapes and Openings, Wall sweeps and Reveals Construction modeling tools: Understanding Parts, Divide Parts by Sketching, Reference. Understanding Assemblies by Creating Assemblies, View and Sheets, Placing an assembly on Sheet		
	Lab Exercise: Create levels, walls then create a construction plan.		
II	**Using of modify tools in Revit Architecture**	**10 Hours**	
2.1	Modify tools Move by Dragging, Moving End, Joined Element, Moves with Nearby Elements, Restriction to Move with Nearby Elements	4	6
2.2	Creating copies using Copy tool, Create Similar, Rotate, Mirror, Array, Scale: Resize the elements using scale tool, scaling numerically,		
2.3	Resizing elements with shape handles, resizing using formulas Split element: Split with gap, joining walls that are split with a gap between them.		
2.4	Unjoining walls created using split with gap, Trim, Doors & Windows, Keyboard Shortcuts, Floor, Ceiling, Roof, Modify roof, Openings.		
	Lab Exercise: Create floor, ceiling, roof, openings and to create doors &windows.		
III	**Annotations, Stairs, Mullions**	**11 Hours**	
3.1	Dimensions: Understanding the Types of Dimensions in Revit Architecture, Temporary Dimensions, Permanent Dimensions, Modifying Dimensions.	4	7
3.2	Constrains: Applying Constraints with Dimension, Equality Constraint and Anchoring Dimensions – Managing View: Plan views, View range, Plan region, Elevation View, Section, 3D Views.		
3.3	Cropping View, Visibility or Graphics, View Templates, Visual Styles and Filter – Curtain wall – Mullion: Mullion Profiles, Controlling Mullion Join, Corner Mullions, Quad Corner Mullion, Trapezoid Corner Mullion, Adding Curtain Door to Panel		

3.4	Embedded walls – Stair: Creating Stair by component, by sketching, by using Stair Calculator, modify stair railings Customizing stair documentation – Ramp & Railings.			
	Lab Exercise: To create dimensions, curtains wall, Stair, Ramp & Railings			
IV	**Adding Text, Materials, 3D view, Callouts**		**13 Hours**	
4.1	Text, Adding text notes, Modify text notes, Model text and editing model text, Tag, Tag tools, Applying tag by category, Tag all not tagged, Material Tag and modifying tags			
4.2	Keynote: Types of Keynote, Placing Keynotes, Keynoting Settings, Custom Keynotes and Adding Tag and Keynote in 3Dview			
4.3	Callouts, Detailing, creating detail views, creating drafting views, importing views from CAD program, Reusing drafting view	5	8	
4.4	Inserting detail components, Repeating detail, Schedules, Rooms, Areas, Area schemes, Area types, Area plans, Area tags, Color Scheme.			
	Lab Exercise: Detailing of the project and color scheme			
Total Theory and Practical Hours			16	24
Total hours			**40**	

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1	Computer/Laptop for each student
2	LCD Projector

SOFTWARE REQUIREMENT

AUTODESK REVIT

REFERENCES

S.NO	Particulars	Author	Publisher/Website
1	Revit 2019 Architecture Training Guide	Linkan Sagar/Srishty Rawal	BPB PUBLICATIONS
2	Autodesk Revit 2018 Architecture Basics	Elise Moss	SDC Publications; 1 edition
3	Mastering Autodesk Revit 2018	Lance Kirby	Sybex; 1 edition
4	Revit 2019 Architecture Training Guide	Linkan Sagar	BPB PUBLICATIONS; First edition
5	Revit Architecture 2020 for Designers	Douglas R. Seidler	Fairchild Books; 4th Revised edition
6	Autodesk Revit Architecture | Revit for beginners| Revit Architecture 2020	-	https://youtu.be/Aj_3dsDr3Yc
7	The Complete Beginner's Guide to Autodesk Revit Architecture	-	https://youtu.be/hyKGz-X4lSg

ASSESSMENT AND CERTIFICATION

S.No	Criteria for Assessment
1	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours
2	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4	The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5	The passing criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6	On successful completion of training, certificate will be issued by Directorate of Technical Education through the project polytechnic.

END EXAMINATION

ALLOCATION OF MARKS

S.No	Description	Max. Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Aim and Procedure	20
	b)Demonstration / Execution	25
	c)Result & Viva Voce	15
	d)Record	20
	Total Marks	**100**

THEORY MODEL QUESTION PAPER

AA/2020/004REVIT ARCHITECTURE

(Maximum Marks: 20)

(N.B: Answer any **Twenty** questions)   **20x1= 20 Marks**

1. Name any two file types used in Revit architecture.
2. How do you set levels in Revit architecture?
3. How you can create a floor in Revit architecture?
4. How you can create parts in Revit architecture?
5. How can you add a custom label in Revit sheet?
6. How to uses section box?
7. What tool allows you to model a new object from scratch?
8. What tool allows you to 3-dimensionally crop unwanted parts of the model?
9. How do you make custom holes and edges on walls?
10. How do you add holes to existing floors?
11. What tools can be used to quickly build generic geometry?
12. How do you cut a vertical hole for the elevator system on a building?
13. What in a first step in creating a roof?
14. Where can you set keyboard shortcuts?
15. How do you create a custom glazing pattern?
16. What is families?
17. How do you switch between wireframe and solid 3d views?
18. How to use void tool?
19. How do you quickly add trim to wall in 3d views?
20. How do you attach the walls to your newly created roof ?
21. What are the types of keynotes?
22. How do you create custom profiles for sweeps?
23. What in view depth?
24. How do you quickly focus the camera on a specific object?
25. How can you smart 2d cad files in your 3d model?