



**Karmaveer Bhaurao Patil University, Satara**

**Syllabus for**

**Advanced Diploma I (3D Architectural Design)**

**Under**

**Faculty of Science and Technology**

**(As per NEP 2020)**

**With effect from Academic Year 2024-2025**

## Department of Animation Science

### Revised Syllabus of I Year Advanced Diploma Program (PG)

#### Title: **3D Architectural Design**

1. Year of Implementation: 2024
2. Duration: One Year
3. Pattern: Semester
4. Medium of Instruction: English
5. Contact hours: 7 hours/week
8. Structure of Course:

Year	Semester	Course No.	Course Code	Contact Hours	Credits (1Credit=15 H)	Total Marks	
1	I	AST I	ADAST-101	30	2	75	
		ASL I	ADASL-101	60	2	150	
	II	AST II	ADAST-202	30	2	75	
		ASL II	ADASL-202	60	2	150	
	Annual	ASP I	ADASP-101	60	2	150	
	Industrial and or Incubation and or Research and or Field Training				60	2	-
	<b>Total</b>				<b>270</b>	<b>12</b>	<b>600</b>

Year	Semester	Course No.	Course Code	Contact Hours	Credits (1Credit=15 H)	Total Marks	
2	III	AST III	ADAST-303	30	2	75	
		ASL III	ADASL-303	60	2	150	
	IV	AST IV	ADAST-404	30	2	75	
		ASL IV	ADASL-404	60	2	150	
	Annual	ASP II	ADASP-202	60	2	150	
	Industrial and or Incubation and or Research and or Field Training				60	2	-
	<b>Total</b>				<b>270</b>	<b>12</b>	<b>600</b>

**Total No. of Papers: Theory: 04, Practical: 04,**

**Project: 02 Number of Lectures per week: 08**

Theory: Semester, Practical and Project: Annual

PT: Paper Theory, PL: Paper Lab, PP: Paper Project, AD: Advance Diploma,

AS: Animation Science

## Semester I

### AST-I: ADAST-101: Title: Sketchup Foundation

(Contact Hrs: 30 Credits: 2)

#### Learning Objectives: -

1. To impart basic Architectural model Development System.
2. To Understand the Layout Inspector.

Credits (Total Credits 2)	Semester I	No Of hours
Unit I	<b>Interface</b> Sketchup Basics, 5 Core concept, Selecting Templates, Navigating the 3D Environment, Measurements, Modeling Strategies, precise modeling, Axis, Origin, Axis tool, Inferences, Creating Geometry, Drawing Tools, Edit Tools, Organizing geometry with container, Groups, Creating Groups, Components, Navigating Containers, Modifying Containers, Default Material, Nested Containers, Section Planes, Layer, Style and Scene, The Professional's SketchUp Template, Base Templates, Model Info, Animation, Component and Dimension, Toolbars, Trays and Dialogue, Material Collection, Material Browser, Creating Material, Style Collection, Extension, ConDoc Tools.	15
Unit 2	<b>Layout</b> Introduction to layout, Paper Space and Model Space, Line Control, Layout Interface, Paper Tab, Reference Tab, Application Tab, Backup Tab, Inspectors, Colors Inspector, Pattern Fill Inspector, Shape Style Inspector, SketchUp Model Inspector, Scaled Drawing Inspector, Dimension Style Inspector, Text Style Inspector, Pages Inspector, Layers Inspector, Scrapbooks Inspector, Instructor Inspector, Auto Render, Trays, Basic Layout Template, Layout Tools, Inserting Content, Working With Sketchup Models, Inserting the File, Clipping Mask, Working With Images, Working With Text, Working With Tables, Managing References, Working With Cad.	15

#### Learning Outcomes:

At the end of the course, the students should be able to:

1. The course aims helping students to gain a solid understanding of the crucial and growing role played by model development in all areas of the modern business and civil industries.
2. This course will also enable the students to expand their business communication with the interior walkthrough development.

#### Reference Books:

1. Brightman, Michael. The SketchUp Workflow for Architecture. 2nd ed. [September 2018].
2. Kedem, Yael. The Complete Guide to SketchUp Pro: All You Need to Know for Mastering SketchUp Pro, Using the Power of Extension and Layout. [May 11, 2021].
3. Tal, Daniel. Google SketchUp for Site Design: A Guide to Modeling Site Plans, Terrain, and Architecture. [2009].
4. Robin De Jongh]. Google SketchUp for Game Design. [November 30, 2011].

**ASL I -ADASL-101: (Practical): Sketchup Foundation**

**Lab (Contact Hrs. - 60 Credits: 02)**

**Learning Objectives:**

1. To impart basic Model development systems.
2. To Understand the Architectural environment.

**List of Practical's (15)**

Credits (Total Credits 2)	<b>Semester I (Lab) Sketchup Foundation</b>	No of hours per Unit Credits
	<ol style="list-style-type: none"> <li>1. Creating basic object with Sketchup pro.</li> <li>2. Creating curve, rounded and organic shapes in sketchup Pro.</li> <li>3. Cutting planes and section in Sketchup Pro.</li> <li>4. Importing CAD files in Sketchup Pro.</li> <li>5. Creating basic 3D model using Sketchup Pro.</li> <li>6. Creating 3D Text in Sketchup Pro.</li> <li>7. Creating a wood table design using Sketchup Pro.</li> <li>8. Creating various interior components in Sketchup Pro.</li> <li>9. Creating a simple house model with sketchup pro.</li> <li>10. Working with component copies and curves in sketchup pro.</li> <li>11. Creating Furniture model using sketchup pro.</li> <li>12. Creating kitchen design in SketchUp Pro.</li> <li>13. Creating Floor plan for images in Sketchup Pro.</li> <li>14. Working with units in Sketchup Pro.</li> <li>15. Exporting work from SketchUp Pro.</li> </ol>	<b>2</b>

**Learning Outcomes:**

At the end of the course, the students should be able to:

1. The course aims helping students to gain a solid understanding of the crucial and growing role played by model development in all areas of the modern business and civil industries.
2. This course will also enable the students to expand their business communication with the interior walkthrough development.

**Reference Books:**

The following material is recommended for the course:

1. Brightman, Michael. The SketchUp Workflow for Architecture. 2nd ed. [City of Publication: Publisher, Year of Publication].
2. Kedem, Yael. The Complete Guide to SketchUp Pro: All You Need to Know for Mastering SketchUp Pro, Using the Power of Extension and Layout. [City of Publication: Publisher, Year of Publication].
3. Tal, Daniel. Google SketchUp for Site Design: A Guide to Modeling Site Plans, Terrain, and Architecture. [City of Publication: Publisher, Year of Publication].
4. Robin De Jongh]. Google SketchUp for Game Design. [November 30, 2011].

## Advanced Diploma/Diploma Courses

### Semester II

#### AST-II: ADAST -202: Title: Advanced Sketchup Techniques (Contact Hrs: 30 Credits: 2)

**Learning Objectives:-**

1. To impart basic Model development systems.
2. To Understand the Architectural environment.

Credits (Total Credits 2)	Semester II	No Of hours
Unit I	<b>Model Organization</b>	<b>15</b>
	Sketchup Basics, 5 Core concept, Selecting Templates, Navigating the 3D Core Concepts of Model Organization, Nesting Groups and Layers, TSWFA/ConDoc Default Layers, CONDOC Layers, Simplify The System, Expand The System, New Construction Process, Working with selected project, The project Site, Finding nearby building, PlaceMarker, GeoModeling, Importing 2D detail, Making unique Material, Working with CAD drawing, Renovation Process, Recording Field Notes.	
Unit 2	<b>Rendering</b>	<b>15</b>
	Introduction To Visualization/Preparation, Presentations, Animation, Virtual Tours, Virtual Reality, Real Objects, Populating A Scene, Preparing A Model, Rendering, Sketchup Stills, Choosing An Appropriate Style, Creating Scenes, Exporting Images From Sketchup, Sketchup Animations, Creating An Animation Model, Adding Scenes, Exporting Animations, Photorealistic Rendering, Sketchup Rendering Extensions, Post processing, Altered Reality, Virtual Reality, Design Process, Client Presentations, Augmented Reality, Construction Documents.	

**Learning Outcomes:**

At the end of the course, the students should be able to:

1. The course aims helping students to gain a solid understanding of the crucial and growing role played by model development in all areas of the modern business and civil industries.
2. This course will also enable the students to expand their business communication with the interior walkthrough development.

**Reference Books:**

1. Brock, John. SketchUp for Builders: A Comprehensive Guide for Creating 3D Building Models Using SketchUp. [December 2018].
2. [L Cline]. SketchUp for Interior Design: 3D Visualizing, Designing, and Space Planning. [City of Publication: Publisher, 7 March 2014].
3. [Alexander C. Schreyer]. Architectural Design with SketchUp: 3D Modeling, Extensions, BIM, Rendering, Making, and Scripting. 2nd ed. [3 July 2023].
4. [ Robin De Jongh]. Google SketchUp for Game Design. [November 30, 2011].

**ASL II- ADASL-202: (Practical): Advanced Sketchup Techniques**

**(Contact Hrs. 60 Credits: 02)**

**Learning Objectives:**

1. To impart basic Model development systems.
2. To Understand the Architectural environment.

**List of Practical's (15)**

Credits (Total Credits 2)	<b>Semester II (Lab) Advanced Sketchup Techniques</b>	No of hours per Unit Credits
	<ol style="list-style-type: none"> <li>1. Adding Doors and Windows in Floor Plan in Sketchup Pro.</li> <li>2. Importing and using images in Sketchup Pro.</li> <li>3. Creating Interior design using Sketchup Pro.</li> <li>4. Creating Bedroom interior using Sketchup Pro.</li> <li>5. Creating Realistic interior rendering in Sketchup Pro (Image).</li> <li>6. Modeling a Landscape in Sketchup Pro.</li> <li>7. Working with Vray in Sketchup Pro.</li> <li>8. Working with perspective in Sketchup Pro.</li> <li>9. Rendering with Sketchup Pro (Animation).</li> <li>10. Working with construction documents in SketchUp pro.</li> <li>11. Exporting to DWG format from SketchUp Pro.</li> <li>12. Create walkthrough in SketchUp Pro.</li> <li>13. Animating camera along the path in Sketchup Pro.</li> <li>14. Rendering a scene in SketchUp Pro.</li> <li>15. Rendering with external plugins in SketchUp Pro.</li> </ol>	<b>2</b>

**Learning Outcomes:**

At the end of the course, the students should be able to:

1. The course aims to help students to gain a solid understanding of the crucial and growing role played by model development in all areas of the modern business and civil industries.
2. This course will also enable the students to expand their business communication with the interior walkthrough development.

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1. Brock, John. SketchUp for Builders: A Comprehensive Guide for Creating 3D Building Models Using SketchUp. Manifesto for Agile Software Development, [December 2018].
2. [L Cline]. SketchUp for Interior Design: 3D Visualizing, Designing, and Space Planning. [City of Publication: Publisher, 7 March 2014].
3. [Alexander C. Schreyer]. Architectural Design with SketchUp: 3D Modeling, Extensions, BIM, Rendering, Making, and Scripting. 2nd ed. [3 July 2023].
4. [ Robin De Jongh]. Google SketchUp for Game Design. [November 30, 2

