



Daffodil Polytechnic Institute, Institute Code: 50238
Lesson Plan – Academic session: July 2024 to December 2024

Subject Teacher : Shanta Islam (Instructor)
 Subject Name : Computer Rendering and Animation-I
 Subject Code : 26162
 Technology : Architecture Technology
 Semester : 6th
 BTEB Text Book Name : Computer Rendering & Animation - 1 (Publisher: Haque Prokashani)

Subject Aims:

- Students able to develop knowledge, skill and attitude in the field of Computer Rendering & Animation (Sketch up)
- With special emphasis on students understand drawing environments and drawing aids.
- Students can understand different setup of drawing in Sketch up.
- Students can drawing commands, modification & edits of drawing.
- Students can know about V-Ray, printing the drawing elements.

Subject Outcome:

- Students will Prepare drawing environments and drawing aids.
- Students will know different setup of drawing in Sketch up.
- Students will learn drawing commands.
- Students can use modification & edits of drawing; camera, material assign, lighting setup.
- Students can use V-ray; camera, lighting, Rendering etc.
- Use Lumion.

Class Timing Distribution	
Particulars	Time
Greeting with students	05 Minutes
Previous Class Review	10 Minutes
Present Class Topic Discussion and Lecture Delivery	60 Minutes
Present Class Topics Review	10 Minutes
Next Class Topic	5 Minutes

Marks	Grade Point	Letter Grade	Marks	Grade Point	Letter Grade
80>	4.00	A+	55-59	2.75	B-
75-79	3.75	A	50-54	2.50	C+
70-74	3.50	A-	45-49	2.25	C
65-69	3.25	B+	40-44	2.00	D
60-64	3.00	B	0-39	0.00	F

Mark Distribution (for 150 Marks)			
Theory Marks		Practical Marks	
Midterm	20	PC	25
Class test	10	PF	25
Quiz test	10	-	-
Final	60	-	-
Total	100	Total	50

Lecture	Chapter/Exam/Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
01	Chapter 01 – Create drawing environments .(Practical Class)	1) Install & Start SketchUp software. 2) Identify the different areas of SketchUp screen. 3) Apply menu bar, command prompt area, toolbox, units and drawing aids. 4) Import the CAD file into SketchUp.	After the Class, Students will be able to: <ul style="list-style-type: none"> ● Setup the Sketch Up install and setup. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection

		<p>5) Perform the drawing aids, different menus and dialog boxes of SketchUp package.</p> <p>6) Save the Drawing file.</p>		<p>Lecture Video: https://www.youtube.com/watch?v=rXTRkFNzd8k</p>
02	Chapter 01 – Create drawing environments (Practical Class)	<p>1) Apply draw line, rectangle, circle, polygon, arc, erase command and use the paint tools.</p> <p>2) Apply delete, move, push/pull, rotate, offset, scale command & orbit tools.</p> <p>3) Keep the record of performed task.</p>	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> Know about the drawing aids, different menus and dialog boxes of Sketch up package. 	<p>1) PC with Internet Connection and Sound System</p> <p>2) Projector</p> <p>3) Mobile with Internet Connection</p> <p>Lecture Video: https://www.youtube.com/watch?v=NCa6A-DKigc</p>
03	Chapter 02 – Perform dimensioning/measurement the object. (Practical Class)	<p>1) Perform dimensioning the object using tape measure tool.</p> <p>2) Put dimension in the object using linear, angular, radius, diameter, ordinate, align, center, mark, continuous, base line commands.</p> <p>3) Apply the protractor tool to measure the circular/rotating dimension.</p>	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> Know about the sketch up commands. 	<p>1) PC with Internet Connection and Sound System</p> <p>2) Projector</p> <p>3) Mobile with Internet Connection</p> <p>Lecture Video: https://www.youtube.com/watch?v=hcyWodv5g_o</p>
04	Class Test - 1	<p>Examination Topic: Chapter 01 – Create drawing environments. & Chapter 02 – Perform dimensioning/measurement the object (Practical based)</p> <p>Examination mark: 10</p> <p>Passing Mark: 04</p>		<p>1) PC with Internet Connection and Sound System</p> <p>2) Projector</p> <p>3) Mobile with Internet Connection</p>
05	Assingment-1	Class Lecture 01, 02, 03	<p>After the Class, Students will be able to:</p> <p>1. Setup the Sketch Up install and setup.</p> <p>2. Know about the drawing aids, different menus and dialog boxes of Sketch up package.</p>	Must be submitted within two lecture.

			3. Know about the sketch up commands.	
06	Chapter 02 – Perform dimensioning/ measurement the object. (Practical Class)	<ol style="list-style-type: none"> 1) Perform the axis tool to measure the axis. 2) Edit dimension. 3) Keep the record of performed task. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Understand the polygon and arch command. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Video: https://www.youtube.com/watch?v=RHnid50KLIA</p>
07	Chapter 03 – Operate the object using the scroll/zoom command. (Practical Class)	<ol style="list-style-type: none"> 1) Apply the pan tool. 2) Perform the zoom, zoom window and zoom extends tool. 3) Apply the layers tool for the drawing. 4) See the objects from outdoor and indoor using the walk & look around tool. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use move and push/pull tool. • Use layers. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Video: https://www.youtube.com/watch?v=2eFlcPsNtzc</p>
08	Chapter 03 – Operate the object using the scroll/zoom command. (Practical Class)	<ol style="list-style-type: none"> 1) Apply the undo & redo tool to cancel & recreate the immediate doing works. 2) Perform the language tool for writing the text. 3) Keep the record of performed task. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use offset and scale command. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Video: https://www.youtube.com/watch?v=OV6Ag3u5bUk</p>
09	Quiz Test - 1	<p>Examination Topic: Chapter 03 – Operate the object using the scroll/zoom command. (Practical Based)</p> <p>Examination mark: 10</p> <p>Passing Mark: 04</p>		<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet

			Connection	
10	Chapter 04 – Construct the shade-shadow and using different view command. (Practical Class)	<ol style="list-style-type: none"> 1) Apply wireframe to show the skeleton of the object. 2) Perform hidden tool to conceal the skeleton of the object. 3) Show the shaded view with & without texture using shaded command. 4) Show isometric view in different angle using isometric view tool. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use wireframe. • Use texture. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Video: https://www.youtube.com/watch?v=eXh6y5b0pdg</p>
11	Chapter 04 – Construct the shade-shadow and using different view command. (Practical Class)	<ol style="list-style-type: none"> 1) Perform the front, back, left, right view tool to show the view of the object. 2) Apply the top & bottom view tool to show the view of the object. 3) Apply the instructor, component, scene & display tool. 4) Keep the record of performed task. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use view tools. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Video: https://www.youtube.com/watch?v=PBVzCYpLN0</p>
12	Chapter 05 – Assign the materials & texture mapping with editing. (Practical Class)	<ol style="list-style-type: none"> 1) Apply material editor dialogue box and its necessary tools. 2) Prepare a material slot by adding color. 3) Apply a material to an object. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use Materials. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Video: https://www.youtube.com/watch?v=Y8YBnOhoR4I</p>
13	Class Test - 2	Examination Topic: Chapter 04 – Dimensioning/measurement the object. (Practical Based) Examination mark: 10 Passing Mark: 04		<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection
14	Chapter 05 – Assign the	1) Perform texture/bitmap for material and apply UV map	After the Class, Students will be able to:	1) PC with Internet Connection and Sound

	materials & texture mapping with editing. (Practical Class)	modifier. 2) Practice to tilling the texture, Real-world scale, bitmap rotate reloads etc.	<ul style="list-style-type: none"> Use texture, Real-world scale, bitmap rotate reloads etc. 	System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=UmEbsk-l-b4
15	Chapter 06 – Perform V-Ray set up.. (Practical Class)	1) Apply V-Ray and its different version for SketchUp. 2) Perform V-Ray installation for SketchUp. 3) Perform V-Ray setup for SketchUp. 4) Assign with render setup dialogue box.	After the Class, Students will be able to: <ul style="list-style-type: none"> Use V-Ray installation for SketchUp. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=Bh3X1THlph8
16	Quiz Test - 2	Examination Topic: Chapter 05 – Assign the materials & texture mapping with editing. (Practical Based) Examination mark: 10 Passing Mark: 04		1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection
17	Assingment-2	Class Lecture 06,07,08,10,11,12,14,15	After the Class, Students will be able to: <ol style="list-style-type: none"> Use undo, redo and help tool. Use previous, walk and look tool. Use pan and zoom tool. Use axis tool and protractor tool. Use tape measure tool. Use offset and scale command. Use move and push/pull tool. 	Must be submitted within two lecture.

			8. Understand the polygon and arch command.	
18	Chapter 06 – Perform V-Ray set up.. (Practical Class)	<ol style="list-style-type: none"> 1) Apply render output size and apply it for the project. 2) Select a camera view and render it. 3) Save the render image in different formats such as BMP, JPEG, PNG, TIF, Tga image etc. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use render image in different formats such as BMP, JPEG, PNG, TIF, Tga image etc. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Slide: https://www.youtube.com/watch?v=3vltc4Evb0k</p>
19	Chapter 07 – Set up V-Ray Camera for SketchUp. (Practical Class)	<ol style="list-style-type: none"> 1) Apply V-Ray target and free camera. 2) Apply V-Ray lens, FOV, Dolly camera etc. 3) Apply to V-Ray cameras for the projects and adjust necessary parameters. 4) Set to viewport for rendering. 5) Keep the record of performed task. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use V-Ray lens, FOV, Dolly camera etc. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Slide: https://www.youtube.com/watch?v=mwAv8kISugM</p>
20	Chapter 08 – Set up lighting and Rendering for SketchUp (Practical Class)	<ol style="list-style-type: none"> 1) Create V-ray sun. 2) Create V-ray dome light. 3) Create V-ray HDR light. 4) Create V-ray light (plane light, spot light, photometric web light). 5) Assign V-ray light to the project and render it for output. 6) Apply general parameters, Intensity parameters, spot light parameters, shadow parameters etc. 7) Keep the record of performed task. 	<p>After the Class, Students will be able to:</p> <ul style="list-style-type: none"> • Use V-ray sun. • V-ray dome light. • V-ray HDR light. • V-ray light (plane light, spot light, photometric web light). • general parameters, Intensity parameters, spot light parameters, shadow parameters etc. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection <p>Lecture Video: https://www.youtube.com/watch?v=23zBfHHaj1s</p>
21	Chapter 01 – 08 (Practical)	Review Class Lecture 01, 02, 03, 05, 06, 07, 09, 10, 11, 13, 14, 16, 17, 18	After the Class, Students will be able to:	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound

			<ul style="list-style-type: none"> Regarding students problem –resolve their problems. 	System 2) Projector 3) Mobile with Internet Connection
22	Assingment-3	Class Lecture -18,19,20,21	After the Class, Students will be able to: 1. Use the view tool. 2. Use the hidden tool and shaded command. 3. Use language and status tool.	Must be submitted within two lecture.
		Mid Term		
23	Chapter 09 – Perform V-Ray Rendering for SketchUp. (Practical Class)	1) Apply V-ray as an assign render under common tab of render setup dialogue box. 2) Apply V-ray tab and its sub parameters. 3) Apply indirect illumination tab and sub parameters.	After the Class, Students will be able to: <ul style="list-style-type: none"> Use V-ray tab and its sub parameters. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=GClGn1Y7bNA
24	Chapter 09 – Perform V-Ray Rendering for SketchUp. (Practical Class)	1) Setting and its sub parameters. 2) Keep the record of performed task.	After the Class, Students will be able to: <ul style="list-style-type: none"> Know the necessity of Setting and its sub parameters. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=xnrmzXnsf34
25		Architectural Site Visit	After the Class, Students will be able to: <ul style="list-style-type: none"> Learn the historical influence 	

			of previous architectural styles.	
26	Class Test - 3	Examination Topic: Chapter 09 – Perform V-Ray Rendering for SketchUp. (Practical Based) Examination mark: 10 Passing Mark: 04		1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection
27	Chapter 10 – Perform V-ray Materials for SketchUp. (Practical Class)	1) Create a V-ray material slot for color and assign it to an object 2) Create a V-ray material slot for bitmap and assign it to an object. 3) Create material for glass, mirror, MS, SS	After the Class, Students will be able to: <ul style="list-style-type: none"> • Use the V-ray material slot. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=sFRy9Bh_zH4
28	Chapter 10 – Perform V-ray Materials for SketchUp. (Practical Class)	1) Create multi/sub material for window and door. 2) Assign V-ray material to the project and render it for output. 3) Keep the record of performed task.	After the Class, Students will be able to: <ul style="list-style-type: none"> • Use the V-ray material slot. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=sFRy9Bh_zH4
29	Chapter 11 – Set up Lumion. (Practical Class)	1) Install & Start Lumion software. 2) How to prepare a material Slot by adding Color? 3) Apply Differences between the several versions of Lumion software.	After the Class, Students will be able to: <ul style="list-style-type: none"> • Prepare a material Slot by adding Color 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=yHW4u6w380Y
30	Chapter 11 –	1) Apply Lumion background.	After the Class, Students will be able	1) PC with Internet

	Set up Lumion. (Practical Class)	<ol style="list-style-type: none"> 2) Import 3D models and workstation specifications. 3) Keep the record of performed task. 	to: <ul style="list-style-type: none"> ● Import 3D models and workstation specifications 	Connection and Sound System <ol style="list-style-type: none"> 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=dNqKuvQykoM
31	Chapter 12 – Perform Lumion's 3D interface. (Practical Class)	<ol style="list-style-type: none"> 1) Apply a look into the new tab. 2) Explore the home tab & the example tab with Load scene and Save scene tabs. 3) Import full scene and export full scene tabs. 	After the Class, Students will be able to: <ul style="list-style-type: none"> ● Import full scene and export full scene tabs. 	<ol style="list-style-type: none"> 1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=IACW-LEzSMw
32	Assingment-4	Class Lecture 23,24,27,28,29,30,31	After the Class, Students will be able to: <ol style="list-style-type: none"> 1. Use info, instructor and component tool 2. Know the necessity of layer tool and scene & display command. 3. Learn the historical influence of previous architectural styles. 4. Use the target and free camera. 5. Apply two cameras for the projects. 6. Use Material Editor Dialogue box and its necessary Tools. 	Must be submitted within two lecture.

			7. Use Refraction Map. 8. Use standard and photometric light.	
33	Quiz Test - 3	Examination Topic: Chapter 11 – Set up Lumion. (Practical Class) Examination mark: 10 Passing Mark: 04		1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection
34	Chapter – 12 Perform Lumion's 3D interface. (Practical Class)	1) Import the model & working with layers with applying materials. 2) Perform the weather & changing the landscape. 3) Apply adding objects, photo mode, movie mode & saving your scene.	After the Class, Students will be able to: <ul style="list-style-type: none"> Perform the weather & changing the landscape. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=ATRkdT7mg14
35	Chapter 13 – Create Materials & Working with Lumion. (Practical Class)	1) Apply materials & texture for 3D model. 2) Edit material & texture. 3) Apply properties menu, placing the texture, textures and advanced options menus.	After the Class, Students will be able to: <ul style="list-style-type: none"> Use materials & texture for 3D model. 	1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=WKFoMWRGxU8
36	Class Test - 4	Examination Topic: Chapter 12 – Perform Lumion's 3D interface. (Practical Based) Examination mark: 10 Passing Mark: 04		1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection
37	Chapter 13 –	1) Apply custom menu & invisible	After the Class, Students will be able	1) PC with Internet

	Create Materials & Working with Lumion. (Practical Class)	material. 2) Apply landscape material & creating materials in Lumion. 3) Change the landscape's material.	to: <ul style="list-style-type: none"> Use the landscape's material. 	Connection and Sound System 2) Projector 3) Mobile with Internet Connection Lecture Video: https://www.youtube.com/watch?v=IglallqVT6c
42	Quiz Test -4	Examination Topic: Chapter 13 – Create Materials & Working with Lumion. (Practical Based) Examination mark: 10 Passing Mark: 04		1) PC with Internet Connection and Sound System 2) Projector 3) Mobile with Internet Connection
43	Presentation	Slide presentation on the Practical class.		1. PC with Internet Connection and Sound System 2. Projector 3. Mobile with Internet Connection.
47	Chapter 01 – 13	Model Test	After the Class, Students will be able to: <ul style="list-style-type: none"> Prepare themselves for the final exam. 	

Final Examination