

Branch Name:	Certificate Course in Graphics Design and Video Editing
Program Code:	CS001
Course Title:	3D Modeling & Animation Foundation (Blender) - II
Course Code:	1CS0010106
Pre-requisite Course:	3D Modeling & Animation Foundation (Blender) – II is 3D Modeling & Animation Foundation (Blender) – I.

Course Objectives (CO):

- To develop advanced skills in 3D modeling, texturing, and scene development using Blender.
- To provide hands-on experience in UV mapping, materials, lighting, and rendering workflows.
- To introduce character rigging and animation techniques for 3D production.
- To develop proficiency in creating production-ready assets and animated sequences.
- To prepare students for advanced animation, VFX, and digital content creation pipelines.

Teaching and Examination Scheme:

Teaching Scheme (Hours. per week)				Evaluation Scheme (Marks)								
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory				Practical				Total
				University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
				Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	
1	1	6	5	-	-	-	-	36	100	09	25	125

Course Contents:			
Sr. No	Topic	Total Hours	Weightage (%)
1.	Advanced Modeling and Asset Development: Advanced polygon modeling techniques, hard surface modeling, organic modeling, environment creation, topology optimization, modifiers workflow, asset management, and production-ready model creation.	15	25
2.	UV Mapping, Texturing and Material Creation: UV unwrapping techniques, texture mapping, PBR workflow, procedural texturing, material creation, shader nodes, texture painting, and look development fundamentals.	15	25
3.	Lighting, Rendering and Scene Development: Three-point lighting, HDRI lighting, cinematic lighting techniques, camera setup, composition principles, rendering optimization, render passes and final output generation.	15	25

4.	3D Motion Graphics & Animation: Principles of animation, keyframe animation, motion design workflows, 3D typography, logo reveals, product visualization, camera movements, animation timing and spacing, lighting and rendering, visual effects integration, broadcast graphics, commercial motion graphics production, and portfolio-based project development.	15	25
-----------	---	-----------	-----------

Course Learning Outcomes (CLO):

At the end of this course, the student would be able to:

- CLO1:** Create advanced 3D models and production-ready assets using Blender.
- CLO2:** Apply UV mapping, texturing, and material development techniques effectively.
- CLO3:** Develop professional lighting setups and render high-quality visual outputs.
- CLO4:** Create rigged characters and animated sequences using industry-standard workflows.
- CLO5:** Produce portfolio-ready 3D projects suitable for animation, VFX.

List of Textbooks

- Blender Master Class – Ben Simonds.
- Blender Foundations – Roland Hess.
- Introduction to 3D Modeling Using Blender – John M. Blain.

List of Text Reference Books

- The Art of 3D Computer Animation and Effects – Isaac Kerlow.
- Digital Modeling – William Vaughan.
- Digital Lighting and Rendering – Jeremy Birn.

E-Resources / Web Links

- Blender Official Documentation
- Blender Studio Training
- Blender Guru Tutorials
- CG Cookie Learning Platform
- CG Boost
- LinkedIn Learning – Blender
- Blender Artists Community

Assignment Description:

- Create a detailed hard-surface model.
- Develop an organic character model.
- Perform UV mapping and texture layout creation.
- Create PBR materials and procedural textures.
- Design a realistic product visualization scene.
- Create indoor and outdoor lighting setups.
- Render high-quality still images using Cycles.
- Create a camera animation sequence.

Mapping of CLO, PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	H	H	M	M	H	L	L	M	M	M	L	L	H	M	L
CLO2	M	H	H	M	H	M	M	M	H	M	M	L	H	H	M
CLO3	M	M	H	H	H	M	M	H	H	M	M	L	H	H	M
CLO4	H	M	H	H	M	M	M	M	H	H	M	L	H	H	H
CLO5	H	M	M	H	H	H	M	M	H	H	H	M	H	H	H

H: High, M: Medium, L: Low