

FACULTY OF COMPUTER APPLICATIONS
B.Sc.(IT) (Animation, Vfx and Game Design)

- **Sem** : 4
- **Subject Code** : 05BA0401
- **Subject** : Texturing & Camera walk through

- **Course Objectives** : Students will be able:
 1. Understand the process of 3D texturing and its role in the production pipeline.
 2. Learn the interface and workflow of Autodesk Maya for modeling and camera setup.
 3. Gain expertise in Substance Painter for realistic material painting and detailing.
 4. Create professional-quality assets with UV mapping and baked textures.
 5. Execute camera walkthroughs with cinematic framing and smooth animation techniques.

- **Prerequisites** : Basic knowledge of 3D modeling and UV concepts.

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PRACTICALS

Unit No	Topics Covered	No of lectures required
1	<p>Introduction to Texturing in Production</p> <ul style="list-style-type: none"> ▪ Role of texturing in animation, VFX, and games. ▪ Maya Interface Overview – Viewports, modeling tools, and camera basics. ▪ Modeling for Texturing – Optimizing meshes, clean topology for UVs. ▪ UV Mapping Basics in Maya – Planar, automatic, manual unwrapping. ▪ Exporting UVs to Substance Painter – File prep and format standards. 	30
2	<p>Introduction to Substance Painter</p> <ul style="list-style-type: none"> ▪ UI, tools, and layer-based workflow. ▪ Texture Baking – Baking AO, curvature, normal maps, etc. ▪ Material Creation – Smart materials, generators, masks, and paint tools. ▪ Texture Maps & PBR Workflow – Base color, roughness, metallic, normal maps. ▪ Exporting Textures for Maya & Game Engines – Compatibility and settings. 	30
3	<p>Texture Application in Maya</p> <ul style="list-style-type: none"> ▪ Applying Substance textures using Arnold Shader. ▪ Look Development – Testing materials with HDRI lighting and Arnold preview. 	30

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	<ul style="list-style-type: none"> ▪ Lighting for Realism – 3-point lighting, HDRI dome, area lights. ▪ Camera Setup – Framing shots, FOV, focal length, and depth of field. ▪ Animation Basics – Keyframing a smooth walkthrough animation in Maya. 	
4	<p>Rendering Settings with Arnold</p> <ul style="list-style-type: none"> ▪ Samples, ray depth, and denoise setup. ▪ Playblast and Render View – Creating animated previews. ▪ Batch Rendering & Post-production – Compiling sequence and adding effects in After Effects or Premiere. ▪ Portfolio Preparation – Creating camera flythroughs of textured assets. ▪ Final Project – Complete textured environment with animated camera walkthrough. 	30

Course Outcomes:

1. Students will model and UV unwrap assets optimized for texturing.
2. Students will apply detailed, realistic textures using Substance Painter.
3. Students will implement effective lighting and camera animation in Maya.
4. Students will produce clean render outputs for walkthrough presentations.
5. Students will integrate skills into a final portfolio-ready project.

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Course Outcomes – Program Outcomes Mapping Table:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	H	-	L	-	M	-	M	-	-	H	L
CO2	-	M	-	H	-	L	-	M	L	-	-
CO3	L	-	-	-	H	M	-	H	-	-	M
CO4	-	H	-	M	-	-	H	-	M	L	-
CO5	-	-	H	-	L	H	-	L	H	M	-

Text Book:

1. Introducing Autodesk Maya 2024 by Dariush Derakhshani 2024 by CRC Press
2. The PBR Guide: Physically Based Rendering Theory and Practice by Wes McDermott 2018 by Allegorithmic.

Reference Books:

1. 3D Texturing: The Insider's Guide by Kent Trammell 2018 by CRC Press
2. Digital Lighting and Rendering by Jeremy Birn 2013 by New Riders

Web Reference:

1. <https://substance3d.adobe.com/documentation/spdoc>
2. <https://area.autodesk.com/learning/>
3. YouTube Channels: FlippedNormals, Arrimus 3D, CG Geek

App Reference:

1. Marmoset Toolbag Viewer – For real-time texture previews
2. Sketchfab – For showcasing textured models with camera views

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Syllabus Coverage from text /reference book & web/app reference:

Unit	Chapter Numbers
1	Book 1 – Ch. 1-3 (Maya Basics, Modeling, UV)
2	Book 2 + Substance Docs (Baking, Painting, Export)
3	Book 1 – Ch. 4-6 (Shading, Lighting, Cameras)
4	Book 1 – Ch. 7-9 + After Effects Tutorials (Rendering, Post-processing, Final Output)