Name of the Program	B.A. / B.Sc. (LIBERAL EDUCATION)			Year/ Semester:		3rd / 6th
Course Name	Advance Composting & 3D Animation	Course Code:	ANI307	Type:		Theory
Credits	04			Total Sessions Hours:		60 Hours
Evaluation Spread	Internal Continuous Assesment:	50 Marks		End Term Exam:		50 Marks
Type of Course	○ Compulsory	⦿ Core		○ Creative		○ Life Skill
Course Objectives	1. The prime objective of this course is to develop sense of 3D modeling and Animation in modeling. 2. Indulge in creative skills, dynamics and Animation as well as to gain the knowledge of Modeling, Texturing and Rigging in Maya. 3. Introducing a broad range of creative skills with the help of 3D Tools					

Course Outcomes(CO): *After the successful course completion, learners will develop following attributes:*

Course Outcome (CO)	Attributes
CO1	The program is a complete product for modeling, animation, shading and rendering 3D assets for static images and animation.
CO2	Maya has one of the best animation tools in 3D industry. It is simple to create/edit complex animation using Time Editor, Graph Editor etc. Well known in the game and film industry.
CO3	Texturing is really the act of controlling the appearance of the surface of your model. You can control things like color, shininess, transparency, reflectivity, and even make the surface look rougher or smoother.
CO4	3D Rigging is an extremely important part of production pipeline. Rigging is used for computer graphics animation; Purpose of rig is to make props or character ready for animation. In rigging technique, we use to create a sequence of bone to create skeletons structure inside characters. Every bone of the skeleton use to deform the body part of the character. In all the production industry without rigging 3D character cannot be animated. Rigging is used in the Film industry, Ad industry, media industry and in Gaming industry.
Pedagogy	Interactive, discussion-bases, student-centered, presentation.
Internal Evaluation Mode	Mid-term Examination: 20 Marks Activity: 10 Marks Class test: 05 Marks Online Test/Objective Test: 05 Marks Assignments/Presentation: 05 Marks Attendance: 05 Marks

Session Details	Topic	Hours	Mapped CO
Unit 1	**Introduction to MAYA** Autodesk Maya is powerful postproduction software that can create 3D images and animations. Animated movies can also be createwithin this software. Maya used to compile green screen	15	CO1

	effects, use motion capture and to animate an object. This software used integrated with other video editing software to produce the highest quality movie as possible. **Activity**: Interface, workspace of Maya and basics shapes Creating Concept: Working out rough designs on paper, finishing base shape, Crease line, Defining, Sharpening, Cutting, and Refining.			
Unit 2	**Modeling** Within Maya, it is possible to use polygon, NURBS, or a combination of both to create the 3D models that will be animate. The model can be built by starting with simply geometric curves, and then derail is added by polygon subdividing the surfaces or adding NURBS curves • Polygonal Modeling • NURBS Modeling **Activity**: Modeling Hard Surfaces with NURBS: Project Overview, Preparing the scene, blocking in the Body, Detailing the body, Finishing & Product Visualization: Creating Initial Geometry, converting to polygon/nubs, closing geometry, Cleaning and redirecting, Trimming, Using Fillets, adding and separating various sections.	15	CO2, CO4	
Unit 3	**Texturing** • UV Unwrapping • Seaming the Rest of the Body • Applying the Color Map • Applying the Bump Map • Applying the Specular Map **Activity**: Paint brush, Projection: Baking, Effects, Smart Materials and Masks, Advanced Channel Painting, UV Re-Projection, Iray Render, Custom Shades, Texture Set, Layer Stack, Shelf, Quick Mask, Clone Tools, Smudge Tools Sample nodes, improving textures through custom maps: Employing Sample, Using the Sampler Info Utility, Using the Light Info Utility, Using the Particle Sampler Utility, Redirecting the Initial Shading Group Node, Connecting Multiple Materials in One Network. Using the 3D Paint Tool, PSD Support, Normal and Displacement Mapping, Creating Light maps	15	CO3	
Unit 4	**Basic Rigging** Makes deforming a character possible. It's the process of taking a static mesh, creating static mesh creating digital skeleton, creating relationship between the mesh and the skeleton • Creating Spine and Controls • Creating the Rig: Legs, Feet, and Shoulders • Creating the Rig: Arms and Hands • Skinning, Painting Weights **Activity**: Character Setup: Learning to use character setup controls & creating Human IK structure in Maya, Understanding the role of control rigs, Effectors & pivots. Rigging Arms & Legs IK/FK leg setup, Reverse foot rig, Foot bending controls, Stretchy system for IK legs arms & hand setup, Finger joints, Bend controls for arms. Skinning: Learning direct &	15	CO4	

indirect skinning methods, editing node behavior to improve performance, understanding bind pose, smooth skinning & rigid skinning, Painting skin weight, using skin weight tool. Constraints, Vehicle Rigging: Using different types of constraints, Blending Animation & constraints, modify constraint axes, Using pole vector constraints & geometry constraints.

CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO1	1					2			2	2			1	
CO2	2								3	1			1	
CO3	2		2			1			1				1	1
CO4	2					2			3	2			1	

Strongcontribution-3,   Averagecontribution-2,   Lowcontribution-1,

Suggested Readings:

Text- Books	1. Autodesk Maya 2024 Basics Guide Published July 7, 2023By Kelly L. Murdock 2. Introducing Autodesk Maya 2016 - Autodesk Official Press by RL Derakhshani
Reference Books	file:///C:/Users/Ishu/Downloads/Documents/LEARNINGMAYA2.pdf
Para Text	**Unit 1:** 1. https://youtu.be/SM1UHuV_YsE 2. https://youtu.be/tZieJcA5vf0 **Unit 2:** 1. https://youtu.be/ROSGdvjODvU 2. https://youtu.be/kYQ98Q5UmNo **Unit 3:** 1. https://youtu.be/EQYU3-V4lOk 2.https://youtu.be/02zCzF3wBjk **Unit4:** 1. https://youtu.be/LK5REbXkVak?list=PLoxdv8fALl90LfISWtg2GaOFmjttfCtE9 2. https://youtu.be/BKJs87xJU_k

Recapitulation & Examination Pattern

Internal Continuous Assesment:

Component	Marks	Pattern
Mid Semester	20	**Section A:** Contains **10** MCQs/Fill in the blanks/One Word Answer/ True-False type of questions. Each question carries **0.5 mark.**

		Section B: Contains **07** descriptive questions out of which **05** questions are to be attempted. Each question carries **03 marks**.
Activity/ Practical	10	Will be decided by subject teacher.
Class Test	05	Contains **05 descriptive questions.** Each question carries **01** mark.
Online Test/ Objective Test	05	Contains **10 multiple choice questions.** Each question carries **0.5** mark.
Assignment/ Presentation	05	Assignment to be made on topics and instruction given by subject teacher.
Attendance	05	As per policy.
Total Marks	**50**	

Course created by: Ms. Iffat Jahan	Approved by: Mr. Gaurav Rawat
Signature:	Signature: