

LESSON PLAN

Subject Name: - Computer Graphics and Animation

Subject Code: - MCA-20-42

Semester:VI

Sr. No.	Topics To Be Covered	No.of Lectures	CO Covered	Teaching Methodology
1.	Unit-I Overview of Computer Graphics, its functions & elements; Introduction to GUI, Computer Vision	1	CO1	PPT
2.	Augmented Reality and other Applications of Graphics; Popular Graphics Software	1		Video
3.	Components and Working of Interactive Graphics; Raster Scan and Random Scan systems and Display Processors	2		PPT
4.	Look-up table; Loading the Frame Buffer; Coordinate Systems	1		PPT
5.	Graphics Devices: Display Technologies: Resolution, Aspect Ratio, Refresh CRT	1		BOARD
6.	Color CRT , Flat Panel Displays; Interactive Input Devices for Graphics , Image and Video Input Devices.	1		PPT
7.	Unit-II Drawing Geometry; Output Primitives; Lines and Pixel Graphics	1	CO2	PPT
8.	Antialiasing; Scan Converting Lines: DDA line drawing algorithms, Bresenham's line Algorithm	1		Board
9.	Scan Converting Circles: Polynomial method for circle drawing, circle drawing using polar coordinates	2		Board
10	Bresenham's circle drawing; Algorithms for Generation of ellipse	1		Board
11	Line Styles; Generation of Bar Charts, Pie-Charts	1		Board
12	Parametric Curves, Parametric Representation of a Circle	1		Board
13	Parametric representation of cubic curves, drawing Bezier curves.	1		Board
14	Stack based fill algorithms: Flood fill algorithm,	1		Board
15	Boundary fill algorithm	1		Board
16	Scan-line polygon fill algorithm and its computational structures.	1		Board
17	Unit – III : Coordinate and Geometric Transformations; Translation, Rotation	2	CO3	Board
18	Scaling; Matrix representations and Homogeneous coordinates	1		Board
19	Composite transformations, General Pivot Point rotation, General Fixed Point Scaling	2		Board
20	Shearing; Reflection ; Reflection about an arbitrary line	1		Board

21	Viewing pipeline; Window, Viewport, Window-to-Viewport transformation; Zooming, Panning; Pointing and Positioning techniques; Rubber band technique; Dragging	2	CO3	Board
22	Point and Line clipping, Cohen-Sutherland line clipping Mid-Point Subdivision line clipping, Liang-Barsky line clipping	3		Board
23	Sutherland-Hodgman polygon clipping; Weiler-Atherton polygon clipping	1		Board
24	Unit IV Visualization techniques for Realism; 3D Object Representation	1	CO4	Video
25	Solid Model Representation Schemes; Euclidean Geometry methods: Regularized Boolean Set Operations	2		Board
26	Primitive Instancing, Boundary Representations	1		Board
27	Curved lines and surfaces, Sweep Representations, Spatial-Partitioning Representations - Octree representation, Constructive Solid Geometry			Board
28	Procedural Methods: Fractals, Shape Grammars, Particle systems, Physically Based modeling, Visualization techniques	2		PPT
29	3D transformations, Three-Dimensional Viewing: Viewing Pipeline	2		PPT
30	Parallel Projection: Orthographic and Oblique Projection; Perspective Projection.	2		PPT
31	Visible-Surface Determination: Z-buffer, Depth-Sorting,	1		Board
32	Area Subdivision, BSP-Tree method; Ray casting	1		Board
33	Illumination and Shading: Modeling Light Intensities; Basic Illumination Models; Gouraud Shading; Phong Shading	1		Board
34	Introduction to Animation: Designing of Animation Sequences; Key-Frame Systems	1		Board
35	Animation Techniques: Tweening, Morphing.	1		Board
36	Principles of Animation and Interpolation for Animation	1		PPT

(COURSE INCHARGE)