COURSE CODE	COURSE TITLE	L	T	P	C
UCS1712	GRAPHICS AND MULTIMEDIA LAB	0	0	3	1.5

OBJECTIVES

- Understand graphics programming in OpenGL using OpenGL and GLUT frameworks
- Implement algorithms for line and circle drawing
- Apply2D, 3D transformations and clipping on objects
- Learn to draw 3D objects and apply projection techniques
- Explore image manipulation and enhancement techniques
- Create3D animation usingany tool.

SUGGESTIVE EXPERIMENTS

1. Studyof Basic output primitives in OpenGL
2. Implementation of Algorithms for drawing 2D Primitives –
    a. Line (DDA, Bresenham's) - all slopes
    b. Circle (Midpoint)
3. 2D Geometric transformations – Translation, Rotation,Scaling, Reflection and Shear
4. 2D Composite Transformations and Window to viewport mapping
5. Implementation of Line clipping algorithm
6. 3D Geometric Transformations - Translation, Rotation and Scaling
7. 3D Projections - Paralleland Perspective projection
8. Image Editing and Manipulation -
    c. Basic Operations on imagelike applying masks,filters,adding/re- moving noise
    d. Creating gif animated images
9. Creation of a simple2D animation
10. Creation of a simple3D animation

TOTAL PERIODS: 45

OUTCOMES

On successful completion of this course, the student will be able to

- Demonstrate drawing of basicoutput primitives (lineandcircle) using algorithms and hence draw complexshapes usingthem(K3)
- Illustrate basic, composite transformations and clipping on 2 dimensional objects (K2)
- Applytransformations andprojections on 3 dimensional objects anddevelop any scene with features including lighting, textures, shadows, changing cameraangles(K3)
- Applybasic operations on images,createGIF animated imagesand2D animation sequence (K3)
- Develop a simple3D animation (K3)

LABORATORY REQUIREMENT FOR BATCH OF 38 STUDENTS

Hardware:

1. Standalone Desktop Machines - 38 Nos

Software:

1. C/C++/Java
2. OpenGL/GIMP
3. Blender/Maya