Theory

Fundamentals of Computer Graphics: Applications of computer Graphics in various fields, Evolution of computer Graphics, Graphical Input-Output Devices, Random scan displays, Raster scan displays.

Graphics Primitives: Algorithms for drawing various output primitives - Line, circle, ellipse, arcs & sectors, Boundary Fill & Flood Fill algorithm, Color Tables.

2-D & 3-D Geometrical Transformations: Translation, Rotation, Scaling, Shear, Reflection, Homogenous coordinate system, Composite transformations.

Viewing &Clipping in 2-D: Window to View port transformation, Cohen Sutherland, Liang Barsky, Nicholl-Lee-Nicholl Line clipping algorithms

Lab

S. No	Description
1	Installation and basics of Basics of OpenGL (library GLUT, GL, GLU)
2	Write a program to: • Create empty window (Black, White and different Colors) • Draw a point of width 10 pixel • Draw a green color line from (10,10) to (50,50) • Draw a triangle on black background • Draw a rectangle on black background
3	Write a program to draw a line using: • DDA algorithm • Bresenham's line algorithm
4	Write a program to: • Draw a circle using Midpoint circle algorithm • Draw an ellipse using Midpoint ellipse algorithm
5	Write a program to fill a polygon using boundary fill and flood fill algorithm (4-connected and 8-connected) for various concave and convex polygons.
6	Write a program for drawing the following simple two dimensional objects using certain graphic functions available for drawing lines, rectangles, polygons, ellipses & circles which generates pixel activation list. (i) House (ii) Car (iii) Fish (iv) Man