COMPUTER GRAPHICS
EX 603

Lecture : 3 **Year : III**
Tutorial : 1 **Part : I**
Practical : 3/2

Course Objectives:

History of computer graphics, Applications of computer graphics, Hardware: Raster-Scan Displays, Vector Displays, Hard copy devices, Input Hardwares, Display Architectures, Applications in various fields like medicine, engineering, art, uses in virtual realism.

1. Introduction and application **(2 hours)**

History of computer graphics, Applications of computer graphics, Hardware: Raster-Scan Displays, Vector Displays, Hard copy devices, Input Hardwares, Display Architectures, Applications in various fields like medicine, engineering, art, uses in virtual realism.

2. Scan-Conversion **(6 hours)**

2.1 Scan-Converting A Point
2.2 Scan-Converting A Straight Line: DDA Line Algorithm, Bresenham's Line Algorithm
2.3 Scan-Converting a Circle and an Ellipse: Mid-Point Circle and Ellipse Algorithm

3. Two –Dimensional Transformations **(6 hours)**

3.1 Two –dimensional translation, rotation, scaling, reflection, shear transforms
3.2 Two-dimensional composite transformation
3.3 Two-dimensional viewing pipeline, world to screen viewing transformations and clipping (Cohen-Sutherland Line Clipping, Liang-Barsky Line Clipping)

4. Three-Dimensional Graphics **(6 hours)**

4.1 Three –dimensional translation, rotation, scaling, reflection, shear transforms
4.2 Three-dimensional composite transformation
4.3 Three-dimensional viewing pipeline, world to screen viewing transformation, projection concepts (orthographic, parallel, perspective projections)

5. Curve Modeling **(4 hours)**

Introduction to Parametric cubic Curves, Splines, Bezier curves