

M.Tech(IT) : First Semester
Paper Code : MT11
Paper Name : Interactive Computer Graphics

SYLLABUS

BASICS OF COMPUTER GRAPHICS: -

Introduction to Computer Graphics, Computer-Aided Designing, Presentation Graphics, Area of Computer Graphics, Design and Drawing, Animation

GRAPHIC DEVICES

Video Display Devices, Refresh Cathode-Ray Tubes, Raster Scan Display, Random Scan Display, CRT For Color Display, Beam Penetration CRT, the Shadow - Mask CRT, Direct View Storage Tube, Tablets, The Light Pen, Three Dimensional Devices

OUTPUT PRIMITIVES

Point And Lines, Line Drawing Algorithms, DDA Algorithm, Bransenham's Algorithm, Circle-Generating Algorithms, Properties of a Circles, Ellipse Generating Algorithm

TWO DIMENSIONAL GEOMETRIC TRANSFORMATIONS AND TWO-DIMENSIONAL VIEWING

Basic Transformation, Matrix Representation And Homogeneous Points, Window-To-Viewport Coordinate Transformation, Need For Clipping And Windowing, Line Clipping Algorithms, The Midpoint Subdivision Method, Other Clipping Methods, Cohen-Sutherland Algorithm, Viewing Transformations

GRAPHICAL INPUT TECHNIQUES

Graphical Input Techniques, Positioning Techniques, Positional Constraints, Rubber band Techniques

THREE DIMENSIONAL GEOMETRIC AND MODELING TRANSFORMATION

Need For 3-Dimensional Imaging, Three Dimensional Display Methods, Techniques For 3-Dimensional Displaying, Parallel Projections, Perspective Projection, Intensity Cues, Stereoscope Effect, Kinetic Depth Effect, Shading, Solid Area Scan Conversion, Scan Conversion Of Polygons, Algorithm Singularity, Three Dimensional Transformations, Translations, Scaling, Rotation, Viewing Transformation, The Perspective, Algorithms, Three Dimensional Clipping, Perspective View Of Cube

HIDDEN SURFACE REMOVAL

Need for hidden surface removal, The Depth - Buffer Algorithm, Properties that help in reducing efforts, Scan Line coherence algorithm, Span - Coherence algorithm, Area-Coherence Algorithms, Warnock's Algorithm, Priority Algorithms

References: -

1. "Computer Graphics", Donald Hearn and M. Pauline Baker, Prentice-Hall of India.
2. "Computer Graphics Principles And Practice", James D. Foley, Andries Van Dam, Steven K. Feiner, John F. Hughes