**Computer Graphics & Multimedia Technologies**

**(CSH311-T/P)**

**Section-A**

**Introduction**: Concepts and Application of Graphics, Display Devices: CRT, Raster, And Random, Flat Panel displays. **Basics Primitives**: Scan conversion, Point representation, Line representation: DDA, Bresenham’s Line Algorithm (1stOctant, Integer, General), Circle representation: Generalized Circle generating Algorithm, Bresenham’s Circle, Midpoint Circle. **Filled area algorithms**: Flood Fill, Boundary Fill, Scan Line Fill, Edge Fill.

**Section-B**

**2-D Transformation:** Basic Transformations (Translation, Rotation, Scaling, Reflection, Shearing), Matrix representation and Homogeneous Coordinates, Coordinate transformation, Composite transformations.**3-D Transformation:** Basic Transformations, Matrix representation, Coordinate transformation, Composite transformations. **Viewing and clipping**: 2-D Viewing, Pipeline, Window to viewport mapping, Clipping: Point, Line and Polygon Clipping.

**Section-C**

**3-D Projections**- Parallel and Perspective. **Hidden Surface removal**: Introduction to hidden surface removal, Z-buffer Algorithm, Scanline Algorithm, Area subdivision method.

**Representing Curves & Surfaces:** Parametric representation, Bezier curve, B-Spline curve, Interpolation method.**Illumination**: Shading, Image manipulation, Illumination model, shading models for polygons, shadow, and transparency.

**Section-D**

**Multimedia Fundamentals:** Concepts**,** Application & Framework of Multimedia system, Multimedia devices

.**Multimedia building blocks**: Using Text in Multimedia, Still Images: bitmap, vector drawing & 3-D drawing and rendering, Image file formats. Sound: Audio-Speech recognition, Digital Audio MIDI, Multimedia Authoring Tools.

**Compression Techniques:**JPEG Compression, MPEG Compression, DVI.A**nimation:** Introduction to Animation, Principle of Animation, Animation Types, Animation Tools.