CA3CRT06 - **Computer Graphics (Core)**

Theory:4 hrs. per

week Credits:4

Unit 1 : (12 hrs.)

Introduction: A survey of Computer Graphics, overview of graphics systems-Video display devices- Refresh CRT, Raster-Scan and Random-Scan Displays ,Color CRT Monitors, DVST, Flat-Panel Displays
, Raster Scan systems, Random scan systems, Input devices, Hard copy devices, Graphics software.

Unit 2: (14 hrs.)

Output primitives: Line drawing algorithms: DDA algorithm, Bresenham's line algorithm, Circle
generating algorithm- Midpoint circle algorithm, Character generation.

Unit 3: (18 hrs.)

2D geometric Transformations: Basic transformations: Translation, Rotation, Scaling; Other transformations-Reflection and shear, Matrix representation and homogenous coordinates, Composite transformation, Interactive picture construction Techniques.

Two-dimensional viewing: viewing pipeline, window and viewport, window to viewport transformation. Clipping operations- Point clipping, Line clipping:- Cohen Sutherland line clipping, Polygon clipping:- Sutherland- Hodgeman polygon clipping, Text Clipping.

Unit 4: (14 hrs.)

Three-dimensional concepts: Three dimensional display methods, Three dimensional object representations- Polygon surfaces, Sweep representations, Constructive solid geometry methods, octrees and quadtrees.

Unit 5 (14 Hrs)

Computer Animation: Design of animation sequences, raster animations, computer animation languages, key-frame systems, morphing, motion specifications.

Book of study **:**
   1. Donald D.Hearn & M. Pauline Baker, Computer Graphics C Version, Second
       Edition,, PHI Pvt. Ltd.

References:
   1. Newman W M & R F Sproul, Principles of Interactive Computer Graphics, Second
       Edition Mc- Graw Hill Publishers.
   2. Plastock R & Xiang Z, Theory and problems of computer Graphics, Second Edition
       Schaum Series, McGraw Hill Publishers.