CORE COURSE XI: 5B11CSC-C COMPUTER GRAPHICS

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5B11CSC-C	4	4	3

COURSE OUTCOME

CO1: Understand basic concepts of graphics input and display devices.
CO2: Learn line and circle drawing algorithms.
CO3: Familiarization with 2D and 3D transformations and projections.
CO4: Understand fundamentals of image processing.

Unit I:

Introduction, Overview of Graphics Systems, Display devices, Input devices, Hard-Copy devices, Graphics software.Line Drawing Algorithms-DDA, Bresenham, Circle Generating Algorithm – Midpoint Algorithm, Area filling algorithms – Flood Fill and Boundary Fill algorithms.

(18 Hrs)

Unit II:

Output primitives-Color and Grayscale levels, 2D Transformations-Translation, Rotation, Scaling, Reflection, Shear, Matrix Representation and Homogenous Coordinates, Composite Transformations.

(18 Hrs)

Unit III:

Two-Dimensional viewing, Window-to-viewport Transformation, Clipping - Point Clipping, Line Clipping – Cohen Sutherland Algorithm, Polygon Clipping – Sutherland Hodgeman Algorithm, Text clipping.

(18 Hrs)

Unit IV:

3D object representations-Polygon surfaces, Polygon tables, Plane equations, Polygon Meshes, 3D transformations-Translation, Rotation, Scaling, Rotation about an arbitrary axis, Reflection, Shear, 3D viewing- Parallel Projection, Perspective Projection.

(18 Hrs)

Books for Study:

1. Donald D Hearn and M. Pauline Baker, Computer Graphics, C Version, 2nd Edition, Pearson.

Books for Reference:

1. Foley, van Dam, Feiner& Hughes, Computer Graphics: Principles and Practice in C, 2nd Edition, Pearson
2. Ranjan Parekh, Principles of Multimedia, Tata McGrawHill,2006
3. D.P. Mukherjee, Fundamentals of Computer Graphics and Multimedia, PHI.
4. David Rogers, Procedural Elements of Computer Graphics, Rogers, 2nd Edition, McGraw Hill Education.

Marks including choice:

Unit	Marks
I	15
II	15
III	15
IV	15