BCA (HONOURS) 6th SEMESTER
CORE - XIV

BCA616C2: COMPUTER GRAPHICS

CREDITS: THEORY: 4, PRACTICAL: 2

THEORY: 60 LECTURES

UNIT-I

1. Introduction **(7 Lectures)**

Basic elements of Computer graphics, Applications of Computer Graphics.

2. Graphics Hardware **(8 Lectures)**

Architecture of Raster and Random scan display devices, input/output devices.

UNIT-II

3. Fundamental Techniques in Graphics **(15 Lectures)**

Raster scan line, circle and ellipse drawing, thick primitives, Polygon filling, line and polygon clipping algorithms, 2D and 3D Geometric Transformations, 2D and 3D Viewing Transformations (Projections-Parallel and Perspective), Vanishing points.

UNIT-III

4. Geometric Modeling **(15 Lectures)**

Representing curves & Surfaces.

UNIT-IV

5. Visible Surface determination **(8 Lectures)**

Hidden surface elimination.

6. Surface rendering **(7 Lectures)**

Illumination and shading models. Basic color models and Computer Animation.

BOOKS RECOMMENDED:

1. J.D.Foley, A.Van Dan, Feiner, Hughes Computer Graphics Principles & Practice 2nd edition Publication Addison Wesley 1990.
2. D.Hearn, Baker: Computer Graphics, Prentice Hall of India 2008.
3. D.F.Rogers Procedural Elements for Computer Graphics, McGraw Hill 1997.
4. D.F.Rogers, Adams Mathematical Elements for Computer Graphics, McGraw Hill 2nd edition 1989.

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LAB: 60 LECTURES (2 CREDITS)

1. Write a program to implement Bresenham‘s line drawing algorithm.
2. Write a program to implement mid-point circle drawing algorithm.
3. Write a program to clip a line using Cohen and Sutherland line clipping algorithm.
4. Write a program to clip a polygon using Sutherland Hodgeman algorithm.
5. Write a program to apply various 2D transformations on a 2D object (use homogenous coordinates).
6. Write a program to apply various 3D transformations on a 3D object and then apply parallel and perspective projection on it.
7. Write a program to draw Hermite/Bezier curve.