SCSA1503	COMPUTER GRAPHICS AND MULTIMEDIA APPLICATIONS	L	T	P	Credits	Total Marks
		3	0	0	3	100

COURSE OBJECTIVES

- To introduce two and three dimensional graphical structure.
- To design 2D and 3D methods and Models.
- To explore the visible surface detection with illumination and color models.
- To understand the concepts involved in multimedia and basis tools.
- To gain knowledge on Multimedia compression and animations.

UNIT 1 BASICS OF COMPUTER GRAPHICS 9 Hrs.

Output primitives- Survey of Computer Graphics-Overview of Graphics System- Line drawing Algorithm (DDA Line Drawing Algorithm, Bresenhams Line Drawing Algorithm)-Circle drawing Algorithm- Curve Drawing Algorithm- Attributes of output Primitives- Antialiasing.

UNIT 2 2D TRANSFORMATION AND VIEWING 9 Hrs.

2D Transformation and other transformation – 2D and 3D Viewing- Line Clipping(Cohen Sutherland)– Polygon Clipping (Sutherland Hodgeman) – Logical Classification Input Function.

UNIT 3 3D CONCEPTS AND CURVES 9 Hrs.

3D Object: Representation Method- B-Rep- Sweep Representation- 3D Transformation – curve generation – Splines – Beziers – Blending of curves other interpolation techniques- Display Durves and Surface – Shape Description Requirements – Parametric function – 3D Concept Introduction – Fractals and Self Similarity – Successive refinement of Curves – Koch Curves and Paeno Curves.

UNIT 4 METHODS AND MODELS 9 Hrs.

Visual Surface detection methods – Illumination models – Halftone Patterns – Dithering Techniques – Polygon Rendering Methods – Ray Tracing Methods – Color methods – Color Applications.

UNIT 5 MULTIMEDIA BASIS AND TOOLS 9 Hrs.

Multimedia Basics and Tools – Introduction to Multimedia – Compression and Decompression – Data and File Format Standards – Digital voice and audio video image animation- Introduction to photoshop- workshop tools- Navigating window – Importing and Exporting Images – Operations on Images – resize, Crop, rotate.Introduction to Flash – Elements of Flash Documents – Flash Environment- Drawing Tools – Flash Animation Importing and Exporting – Adding Sounds – Publishing Flash Movies.

Max.45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 - Identify the various line and circle drawing algorithm.
CO2 - Study the various transformations in 2D and 3D objects.
CO3 - Understand the concepts of curves and surface.
CO4 - Apply transformation and clipping algorithm in 2D and 3D objects.
CO5 - Design Illumination and color models.
CO6 - Implement 2D and 3D Transformation concepts in Real world Applications.

TEXT / REFERENCE BOOKS

1. Donald Hearn and M. Pauline Baker, Computer Graphics C Version, 2nd Edition, Prentice Hall, 2006.
2. Fabio Ganovelli, Massimiliano Corsini, Sumanta Pattanaik, Marco Di Benedetto “Introduction to Computer Graphics: A Practical Learning Approach” Taylor and Frainces Group. 2015.
3. Tay Vaughan ,”Multimedia”, 5th Edition, Tata McGraw Hill, 2001.
4. Ze-Nian Li, Mark S. Drew ,”Fundamentals of Multimedia”, Prentice Hall of India, 2004.
5. D.P. Mukherjee , “Fundamentals Of Computer Graphics And Multimedia ” Prentice Hall of India Private Limited, 2006.
6. D. McClelland, L.U.Fuller, ”Photoshop CS2 Bible”, Wiley Publishing, 2005.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks : 100 **Exam Duration : 3 Hrs.**
PART A : 10 Questions of 2 marks each-No choice **20 Marks**
PART B : 2 Questions from each unit with internal choice, each carrying 16 marks **80 Marks**