M.Sc. (Information Technology)
Semester III

Course Code	PS03EINT23	Title of the Course	Multimedia and Computer Graphics
Total Credits of the Course	4	Hours per Week	4

Main Focus of the Course outcomes	Employability	Skill Development	Entrepreneurship
	✓	✓	✓
Course Objectives:	1. To learn the fundamental concepts of multimedia technology and computer graphics. 2. To understand the basics of output primitives and two-dimensional transformations. 3. To learn the basic concepts related to clipping and 3D transformation.		

Course Content		
Unit	Description	Weightage* (%)
1.	**MULTIMEDIA** - Introduction to Multimedia with its applications - Multimedia hardware & software - Introduction of digital medium and various facets of multimedia: digital audio, multimedia texts, - Hypermedia Graphics - Animation: two-dimensional and three-dimensional animation techniques and digital video and - basic concept for color display - Multimedia authoring, characteristics of authoring tools, authoring methodologies and multimedia programming	25
2.	**OVERVIEW OF COMPUTER GRAPHICS SYSTEM** - Applications of Computer Graphics - Introduction to Computer Graphics System - Video display devices - Raster Scan and random scan system	25

	- Input and output devices - Simple Raster Display System	
3.	**OUTPUT PRIMITIVES AND TWO DIMENSIONAL TRANSFORMATIONS** - Algorithms for output primitives (Line, Circle, Ellipse Generation) - Boundary fill, flood fill, and soft fill algorithms - Character generation – Bitmap and outline fonts - Attributes of output primitives - Basic 2-D transformations: Translation, Rotation, Scaling, Reflection and Shear - Matrix representation of basic transformations and homogeneous coordinates	25
4.	**CLIPPING AND THREE DIMENSIONAL CONCEPTS** - Three dimensional concepts – representations - Windowing and Clipping - Window to view port transformation, Point, Line, polygon and text clipping algorithms - 3-D display methods: Parallel projection, Perspective projection - 3D transformations (translation, rotation and scaling) - 3D Viewing pipeline - Visible surface detection methods	25

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching as well as online / ICT-based teaching practices

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand the fundamental concepts of multimedia technology and computer graphics.
2.	explain the basics of output primitives and two-dimensional transformations.
3.	describe the basic concepts related to clipping and 3D transformation.

Suggested References:	
Sr. No.	References
1.	S. Gokul: Multimedia Magic, Second Edition, BPB Publication, 2011.
2.	Hearn, D. and Pauline Baker, M., "Computer Graphics", Second Edition, Pearson Education, 2011.
3.	Foley J. D., Van Dam A.: Fundamentals of Interactive Computer Graphics, Addison-Wesley. 1982.
4.	Neuman, W.M., and Sproull, R.F., "Principle of Interactive Computer Graphics", McGraw Hill Book Co., 1979.
5.	Rogus, D.F., "Procedure elements for Computer Graphics", Mc - Graw Hill Book Co., 1985.

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