

PG DEPARTMENT OF COMPUTER SCIENCE				CLASS: I M.Sc. Computer Science				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours/week	CIA	Ext	Total
II	Major Core Practical - 4	21P2DMP4	Computer Graphics Lab	2	4	40	60	100

Nature of Course			
Knowledge and skill			Employability oriented
Skill oriented	✓		Entrepreneurship oriented

Course Objectives

1. To understand basic display system, display mechanisms and Shapes Algorithms.
2. To know about the colour models and Attributes, Various transformation Techniques.
3. To implement various Clipping Techniques. To Impart Viewing Concepts.
4. To apply various 3D Viewing Transformation Techniques.
5. To understand necessary Approaches and Techniques to the graphics system in order to provide effective view of surfaces to users.

Unit	Content	Hrs	K-Level	CLO
I	1. To Implement Line Generation using DDA Algorithm. 2. To Implement Line Generation using Bresenham's Algorithm. 3. To Implement Circle Generation using Bresenham's Algorithm. 4. To Implement Ellipse Generation using Bresenham's Algorithm.	12	Up to K2	1
II	5. To demonstrate various types of Text and Fonts. 6. To Implement Polygon filling using boundary fill Algorithm. 7. To make an Image using the various attributes of line, circle, rectangle and ellipse.	12	Up to K3	2
III	8. To implement line clipping using Cohen-Sutherland Clipping Algorithm. 9. To implement line clipping using Sutherland-Hodgeman Polygon Clipping Algorithm. 10. To Implement 2D transformations: Translation, Scaling and Rotation.	12	Up to K3	3
IV	11. To Implement 3D transformations: Translation, Scaling and Rotation. 12. To Implement 3D transformations: Mirror reflection and Shearing. 13. To display 3D objects as 2D display using perspective transformations.	12	Up to K4	4
V	14. To Implement a Window to Viewport Mapping. 15. To Implement Visualizing Projections of 3D Images. 16. To Implement Animation using Transformations.	12	Up to K4	5

Book for Study

“Computer Graphics” by Donald Hearn M. Pauline Baker, Second Edition, Pearson Education, 2007.

Books for Reference

1. “Computer Graphics using Open GL” by F.S Hill, JR, Second Edition, PHI, 2005
2. “Computer Graphics for Scientists and Engineers” by R.G.S Asthana, N. K. Sinha, Second Edition, New Age international Publishers, 2003
3. “Interactive Computer Graphics” by Neuman and Sproull, MC Graw Hill ISE, 1993.
4. “Principles of Interactive Computer Graphics” by William M. Newman and Robert F. Sproull – TMH – 1986.

Web Resources

1. <https://onlineengineering.files.wordpress.com>
2. <https://graphics1513.rssing.com>
3. <https://vardhamancse.yolasite.com>

Rationale for Nature of the course

- Develop cognitive and practical skills such as graphical communications, spatial visualization, creative problem solving, design capabilities and modelling, both physically and logically through Computer graphics.

Activities on Skill Oriented

- Practice to implement Algorithms
- Implementing Basic Animation Techniques

Pedagogy

Projector Demonstration and Practical sessions.

Course Designer(s) Name

1. Mrs. S. Sasikala
2. Mrs. S. Rajalakshmi

Lesson Plan

UNIT	Topics to be covered	Hours	Mode
I	To Implement Line Generation using DDA, Bresenham’s Algorithm.	12	Demo & Practical Session
II	To demonstrate various types of Text and Fonts, boundary fill Algorithm.	12	Demo & Practical Session
III	To implement line clipping using Cohen-Sutherland, Sutherland-Hodgeman Algorithm.	12	Demo & Practical Session
IV	To Implement 3D transformations: Translation, Scaling and Rotation , Mirror reflection and Shearing.	12	Demo & Practical Session
V	To Implement a Window to Viewport Mapping. To Implement Visualizing Projections of 3D Images. To Implement Animation using Transformations.	4 4 4	Demo & Practical Session

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLOs	COURSE LEARNING OUTCOMES	K - Levels
CLO 1	Discuss about various Drawing Algorithms	Up to K2
CLO 2	Demonstrate various types of Text and Fonts and Apply the concepts of Polygon filling using boundary fill Algorithm.	Up to K3
CLO 3	Implementing the various Clippings Algorithm and Apply the concept of 2D object representation.	Up to K3
CLO 4	Apply 3D Geometric Transformation in an object.	Up to K4
CLO 5	Describe the importance of Viewing and Projections.	Up to K4

Mapping of CLOs with POs

CLOs / POs	PO1	PO2	PO3	PO4	PO5	PO6
CLO 1	2	1	1	-	-	-
CLO 2	2	3	3	3	1	-
CLO 3	2	3	2	2	1	-
CLO 4	2	3	3	3	3	2
CLO 5	2	3	3	3	3	2

(3 –Advanced Application, 2 – Intermediate Level, 1- Basic Level)