



# Indraprastha College for Women University of Delhi

Course Name:	B.A (P.) Computer Science
Paper Title:	Computer Graphics
Unique Paper Code:	
Semester:	VII
Faculty(s):	Dr. Manju Bala
Year:	2025

<b>Work Plan</b>			
Unit No.	Learning Objective	Lecture No.	Topics to be Covered
1	<b>Introduction</b>	1	Introduction to Graphics systems.
		2	Introduction to Graphics systems.
		3	Basic elements of Computer graphics,
		4	Applications of computer graphics.
		5	Architecture of Raster and Random scan display devices,
		6	Input/output devices.
2	<b>Drawing and clipping primitives</b>	7	Raster scan line drawing algorithms,
		8	Raster scan line drawing algorithms,
		9	Raster Scan Circle drawing algorithms,
		10	Raster Scan Ellipse drawing algorithms,
		11	Raster Scan Ellipse drawing algorithms,
		12	Polygon filling,
		13	Polygon filling,
		14	line clipping algorithms
		15	line clipping algorithms
		16	line clipping algorithms
		17	line clipping algorithms

		18	polygon clipping algorithms
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		19	polygon clipping algorithms
3	<b>Transformation and Viewing</b>	20	2D Geometric Transformations,
		21	2D Geometric Transformations,
		22	3D Geometric Transformations,
		23	3D Geometric Transformations,
		24	2D and 3D Viewing Transformations,
		25	2D and 3D Viewing Transformations,
		26	2D and 3D Viewing Transformations,
		27	2D and 3D Viewing Transformations,
		28	2D and 3D Viewing Transformations,
		29	Vanishing points.
4	<b>Geometric Modeling</b>	30	Polygon Mesh Representation,
		31	Polygon Mesh Representation,
		32	Cubic Polynomial curves (Hermite and Bezier).
		33	Cubic Polynomial curves (Hermite and Bezier).
		34	Cubic Polynomial curves (Hermite and Bezier).
5	<b>Visible Surface determination and Surface Rendering</b>	35	Z-buffer algorithm
		36	List-priority algorithm
		37	Area subdivision algorithm for visible surface determination.
		38	Illumination and shading models
		39	Illumination
		40	Shading models
		41	Shading models
		42	RGB color model
		43	RGB color model
		44	Basics of Computer Animation.

		45	Basics of Computer Animation.
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<b>Syllabus</b>		
<b>Unit</b>	<b>Contents</b>	<b>Contact Hours</b>
I	Introduction: Introduction to Graphics systems, Basic elements of Computer graphics, Applications of computer graphics. Architecture of Raster and Random scan display devices, input/output devices.	8
II	Drawing and clipping primitives: Raster scan line, circle and ellipse drawing algorithms, Polygon filling, line clipping and polygon clipping algorithms	14
III	Transformation and Viewing: 2D and 3D Geometric Transformations, 2D and 3D Viewing Transformations (Projections- Parallel and Perspective), Vanishing points.	16
IV	Geometric Modeling: Polygon Mesh Representation, Cubic Polynomial curves (Hermite and Bezier).	8
V	Visible Surface determination and Surface Rendering: Z-buffer algorithm, List-priority algorithm and area subdivision algorithm for visible surface determination. Illumination and shading models, RGB color model and Basics of Computer Animation.	14
	<b>Total</b>	
<b>Text Books/Suggested Readings:</b>		
<b>S. No.</b>	<b>Name of Authors/Books/Publishers</b>	<b>Year of Publication/ Reprint</b>
1.	Computer Graphics: Principles and Practice 2nd Edition in C, James D. Foley, Andries van Dam, Steven K. Feiner, John F. Hughes, Pearson Education Asia, 1999	1999
2.	Computer Graphics C version (2nd Edition), D.Hearn, M.P. Baker: Pearson Education, 2006.	2006
3.	Mathematical Elements for Computer Graphics 2nd Edition, D.F. Rogers, J. A. Adams, Mc Graw Hill 2nd edition, 2002.	2002

<b>Paper Components</b>			
<b>Credits</b>	<b>Lecture (L)</b>	<b>Tutorial (T)</b>	<b>Practical (P)</b>
<b>4</b>	<b>3</b>	<b>0</b>	<b>1</b>
<b>Assessment Scheme</b>			
<b>S.No.</b>	<b>Component</b>	<b>Marking Scheme</b>	<b>Total Marks</b>
1	Internal Assessment <ul style="list-style-type: none"> <li>• Assignment/Quiz/Project / Presentation</li> <li>• Class Test</li> <li>• Attendance</li> </ul>	 12  12  6	<b>30</b>
2.	Continuous Assessment ( <b>Tutorial</b> ) <ul style="list-style-type: none"> <li>• Activity 1</li> <li>• Activity 2</li> <li>• Attendance</li> </ul>	   	NA
3.	Practical <ul style="list-style-type: none"> <li>• Continuous Assessment</li> <li>• End Term Written/Practical Exam</li> <li>• Viva</li> </ul>	   	40
4.	End Semester Examination		90