

SOCIETY OF ST. FRANCIS XAVIER, PILAR'S
FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

(Approved by AICTE & Affiliated to University of Mumbai)

Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.

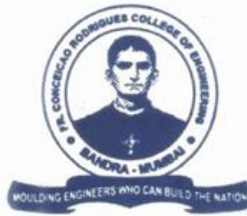
Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : www.frcrce.ac.in • Email : crce@fragnel.edu.in

Computer Engineering

(Academic Year :2023-2024)

Course Code: CSC305	
Course Name: Computer Graphics, Comps B	
Course Teacher: Prof. Sushma Nagdeote	
Course Outcomes (CO): <i>At the End of the course students will be able to</i>	
CSC305.1	Compute pixel positions along the given graphics output primitive.
CSC305.2	Apply transformations on graphical objects in 2-D and 3-D space.
CSC305.3	Apply clipping algorithms on 2-D graphical objects.
CSC305.4	Explain Viewing and Modelling techniques used in 2-D & 3-D space.
CSC305.5	Explain visible surface detection techniques applied to 3-D space.



SOCIETY OF ST. FRANCIS XAVIER, PILAR'S
FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

(Approved by AICTE & Affiliated to University of Mumbai)

Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.

Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : www.frcrce.ac.in • Email : crce@fragnel.edu.in

Course Lesson Plan

Sr. No.	Proposed Date	Actual Date	Topics	CO	Teacher's Remark	HoD's Remark
1	17-07-23		Definition and Representative uses of computer graphics, classification of application areas, Overview of coordinate systems	CO1		
2	19-07-23		Definition of scan conversion, Rasterization and rendering.	CO1		
3	20-07-23		Raster scan & random scan displays			
4	25-07-23		Architecture of raster graphics system with display processor,	CO1		
5	26-07-23		Architecture of random scan systems.			
6	27-07-23		Introduction to Graphics primitives object.	CO1		
7	01-08-23		DDA Line Drawing Algorithm (Derivation).	CO1		
8	02-08-23		Bresenham's Line Drawing Algorithm.	CO1		
9	03-08-23		Examples for practice on line Drawing Algorithm.	CO1		
10	08-08-23		Mid-point Circle Drawing Algorithm (Derivation).	CO1		
11	09-08-23		Mid-point Circle Drawing Algorithm (Examples).	CO1		
12	10-08-23		Mid-point Ellipse Drawing Algorithm (Derivation).	CO1		
	15-08-23		Mid-point Ellipse Drawing Algorithm (Examples).	CO1	Module 2- Test 1	
	16-08-23		Aliasing and anti-aliasing techniques, Boundary Fill Algorithm and Flood Fill Algorithm	CO1		
	17-08-23		Independence Day			
	18-08-23		Parsi New Year			
13	17-08-23		Filled area primitives: Scan line polygon fill algorithm, Inside-Outside Test Methods	CO1		
14	22-08-23		Examples for Practice.	CO1		
15	23-08-23		Basic transformations: Translation, Scaling, Rotation	CO1		
16	24-08-23		Translation, Scaling, Rotation	CO2	Assignment 1	
	29-08-23 to 31-08-23		Unit Test-1			
17	05-09-23		Matrix representation & Homogeneous coordinates,	CO2		



SOCIETY OF ST. FRANCIS XAVIER, PILAR'S
FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

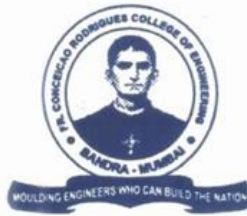
(Approved by AICTE & Affiliated to University of Mumbai)

Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.

Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : www.frcce.ac.in • Email : crce@fragnel.edu.in

18	06-09-23		Composite transformations	CO2		
19	07-09-23		Reflection, Shear	CO2	Module 3-Test 2	
20	12-09-23		Viewing transformation pipeline, Window to viewport coordinate transformation	CO4		
21	13-09-23		Clipping: Point clipping, Lineclipping algorithms: Cohen-Sutherland	CO3		
22	14-09-23		Line clipping algorithm: Liang-Barsky	CO3		
	19-09-23 to 22-09-23		Shri Ganesh Festival			
23	26-09-23		Polygon Clipping Algorithm: Sutherland-Hodgeman, Weiler-Atherton	CO3		
24	27-09-23		3D Transformations: Translation, Rotation, scaling, 3D Reflection	CO3		
	28-09-23		Anant Chaturdashi			
25	03-10-23		Composite transformations: Rotation about an arbitrary axis	CO2		
26	04-10-23		Composite transformations: reflection about arbitrary plane	CO2		
27	05-10-23		3D transformation pipeline	CO2	Module 4-Test 3 (After 1.30 PM)	
	09-10-23 to 13-10-23		Unit Test-2			
28	17-10-23		Projections – Parallel, Perspective.(Matrix Representation)	CO2		
29	18-10-23		Bezier Curve , B-Spline Curve	CO4		
30	19-10-23		Fractal Geometry: Fractal Dimension, Koch curve	CO4	Module 5-Test 4	
31	24-10-23		Visible Surface Detection: Back Surface detection method, Depth Buffer method, Area Subdivision method	CO5	Assignment 2	
32	25-10-23		Animation: Introduction to Animation, Traditional Animation Techniques, Principles of Animation	CO5		
			University ESE Examination			



SOCIETY OF ST. FRANCIS XAVIER, PILAR'S
FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

(Approved by AICTE & Affiliated to University of Mumbai)

Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.

Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : www.frcrce.ac.in • Email : crce@fragnel.edu.in

Text books:

1. Hearn & Baker, "Computer Graphics C version", 2nd Edition, Pearson Publication
2. James D. Foley, Andries van Dam, Steven K Feiner, John F. Hughes, "Computer Graphics Principles and Practice in C", 2nd Edition, Pearson Publication
3. Samit Bhattacharya, "Computer Graphics", Oxford Publication.

Reference Books:

1. D. Rogers, "Procedural Elements for Computer Graphics", Tata McGraw-Hill Publications.
2. Zhigang Xiang, Roy Plastock, "Computer Graphics", Schaum's Outlines McGraw-Hill Education
3. Rajesh K. Maurya, "Computer Graphics", Wiley India Publication.
4. F.S. Hill, "Computer Graphics using OpenGL", Third edition, Pearson Publications

Course Instructor: Prof. Sushma Nagdeote