COURSE PLAN

NAME OF THE DEPARTMENT: **BCA/IT**

NAME OF THE FACULTY: **Prof. Khushbu Kumari**

Prof. Jayanti Kumari

ACADEMIC SESSION: **2023-24**

YEAR: **2024**

PROGRAMME: **CA / IT**

SEMESTER: **VI**

COURSE TYPE: Core

COURSE NAME: **COMPUTER GRAPHICS WITH FLASH**

COURSE CODE: **C14**

TOTAL CREDIT: **6**

PROGRAMME OUTCOMES (PO):

PO1: **Scientific & Computational Knowledge: -** Apply the information on scientific & computational ideas, software engineering and innovation basics.

PO2: **Problem Analysis, Design & Implementation: -** Identify, formulate and analyze real world problem. Design solution for Software, Hardware & Networking problems and implementation using Software & Network tools.

PO3: **Modern tool usage**: - Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.

PO4: **Project Management:** -Comprehend Software Engineering and Technology standards and apply these to prepare own project and system as a part and pioneer in a group.

PO5: **Career Development & Entrepreneurship:** Classify opportunities, private enterprise dream and use of original thoughts to build worth and means for the betterment of the human being and the world.

PO6: **Communication:** Communicate effectively on computational & information Technology activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO7: **Ethics:** Ability to apply and commit professional Ethics, cyber regulations & control on software piracy in a global economic environment.

PO8: **Preparing students for future aspects**: Building and improving their creativity, social awareness, and general knowledge.

PO9: **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1: An ability to apply technical comprehension in varied areas of Computer Applications and experience a conducive environment in cultivating skills for thriving career and higher studies.

PSO2: Understand the concept of Programing logic, Web designing logic, Signal processing, Image processing, Mobile Applications, Multimedia Media.

PSO3: Develop competencies in various disciplines of technologies such as Server-side Web applications, computer networking, software engineering, database concepts and programming

COURSE OUTCOMES (COs):

CO1: Learn the basic elements of Computer graphics, Applications of Computer Graphics.

CO2: Understand Architecture of Raster and Random scan display devices, input/output devices.

CO3: Apply Raster scan line, circle and ellipse drawing, thick primitives, Polygon filling, line and polygon clipping algorithms, 2D and 3D Geometric Transformations 2D and 3D Viewing Transformations (Projections- Parallel and Perspective), Vanishing points.

CO4: Analyze and understand Points and Lines. Line drawing algorithms: DDA Algorithms, Bresenham's Algorithm Circle generation algorithm Curves: Conic Section, Polynomial and spline curves

CO5: Representing curves & Surfaces Hidden surface elimination.
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CO6: Illumination and shading models. Basic color models and Computer Animation.

COURSE TEACHING AND LEARNING ACTIVITIES

A. PEDAGOGY
    i.   **Whiteboard**   √
    ii.   **Flipped Class**   √
    iii.   **PPT**   √

B. COURSE COMPLETION PLAN

UNIT	NO. OF LECTURES		TEST	QUIZ	ASSIGNMENT
	THEORY	PRACTICAL/TUTORIAL			
1	5	5	√	√	√
2	8	10	√	√	√
3	22	15	√	√	√
4	10	10	√	√	√
5	8	10	√	√	√
6	7	10	√	√	√

A. COURSE DELIVERY PLAN:

UNIT	TOPIC/SUBTOPIC	LECTURE REQUIRED (Theory & Practical)	CO ADDRESSED	ASSIGNMENT/TEST/QUIZ
1	Basic elements of Computer graphics, Applications of Computer Graphics.	5+5	CO1	√
2	Architecture of Raster and Random scan display devices, input/output devices.	8+10	CO2	√
3	Raster scan line, circle and ellipse drawing, thick primitives, Polygon filling, line and polygon clipping algorithms, 2D and 3D Geometric Transformations, 2D and 3D Viewing Transformations (Projections-Parallel and Perspective), Vanishing points.	22+20	CO2, CO3	√
4	Representing curves & Surfaces.	10+12	CO4	√

5	Hidden surface elimination.	8+7	CO5	√
6	Illumination and shading models. Basic color models and Computer Animation.	7+8	CO6	√

B. COURSE OUTCOME ASSESSMENT PLAN
a. DIRECT ASSESSMENT

(Please tick the appropriate column)

COURSE OUTCOME	ASSESSMENT				REMARKS
	QUIZ	TEST	MID SEMESTER	END SEMESTER	
CO1		√	√		
CO2		√	√		
CO3		√	√		
CO4		√	√		
CO5		√	√		
CO6		√	√		

b. INDIRECT ASSESSMENT (STUDENT SURVEY)

Rate the following aspects of course outcomes. Use the scale 1-3

S. No	Course Outcome	1	2	3
1.	CO1			√
2.	CO2		√	
3.	CO3			√
4.	CO4			√
5.	CO5		√	
6.	CO6		√	

1. Average
2. Good
3. Very Good

C. SUGGESTED READINGS
a. TEXT BOOKS

1. https://math.hws.edu/eck/cs424/downloads/graphicsbook-linked.pdf
2. http://repo.darmajaya.ac.id/5422/1/Fundamentals%20of%20Computer%20Graphics%2C%20Fourth%20Edition%20%28%20PDFDrive%20%29.pdf

b. REFERENCE BOOKS

1. J.D.Foley, A.Van Dan, Feiner, Hughes Computer Graphics Principles & Practice 2nd edition Publication Addison Wesley 1990.
2. D.Hearn, Baker: Computer Graphics, Prentice Hall of India 2008.
3. D.F.Rogers Procedural Elements for Computer Graphics, McGraw Hill 1997.
4. D.F.Rogers, Adams Mathematical Elements for Computer Graphics, McGraw Hill 2nd edition 1989.

c. VIDEO RESOURCE

1. https://onlinecourses.swayam2.ac.in/ntr24_ed38/previewWEB

RESOURCES:

1. https://www.javatpoint.com/computer-graphics-programs
2. https://www.tutorialspoint.com/basic-graphic-programming-in-cplusplus

d. E-RESOURCES