

1. Course Name:	
COMPUTER GRAPHICS	
2. Course Code:	
3. Semester / Year:	
First Semester/ 2025-2026	
4. Description Preparation Date:	
15/11/2025	
5. Available Attendance Forms:	
Weekly (Theory: 3 hours, Practically: 2 hours)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Theory: 45 Hours Practically: 30 hours Tutorial: 15 hours Total: 75 hours Total Units: 6	
7. Course administrator's name (mention all, if more than one name)	
Dr. Suphian M Tariq	
8. Course Objectives	
Course Objectives	1- The student's awareness of distinguishing diagrams and drawings in the computer. 2- 2. Recognize the basics of mathematics and algorithms applied in the computer. 3- 3. Design software tools that help apply computer graphics. 4- Understand real-world phenomena and apply them to the computer. 5- Simulate a simple construction of a Computer graphic application.
9. Teaching and Learning Strategies	
Strategy	The main strategy that will be adopted in delivering this module is to actively engage students in both the theoretical and practical aspects of Computer graphics. This will be achieved through lectures, hands-on lab sessions, and interactive tutorials that promote exploration and creativity. Students will be encouraged to apply learned concepts by working on small-scale projects and visual experiments that help develop their Technical skills and artistic intuition. The focus will be on fostering problem-solving abilities and a deeper understanding of graphical Algorithms through continuous practice and guided discussions.
1. Course Structure	
Course Description Form	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Th.:3H Pr.: 2H	Introduction to computer	Introduction to computer graphics, its objectives, concepts and applications (tools, graphic system representation, Pixel, how to deal with it, and colors) Raster scan display (scan conversion, frame buffer, image display)	Lect. & Lab.	Exam
2	Th.:3H Pr.: 2H	Understand a vector types & measurement associated with vectors	(Vector): {unit vector, measurement of vectors, add vectors, negative vectors and subtraction vectors, scaling vectors, multiplication vectors use 'dot product' and 'cross product', direction cosine}	Lect. & Lab.	Quiz
3	Th.:3H Pr.: 2H	Understand to draw a line with different algorithm	line drawing methods: 1: Standard lines 2: digital differential analysis 3: Brenham's	Lect. & Lab.	Homework
4	Th.:3H Pr.: 2H	Understand to draw a circle with different algorithm	Draw a circle with 1: equation of the circle 2: Brenham's Circle 3. Polar Coordinate	Lect. & Lab.	Exam
5	Th.:3H Pr.: 2H	Understand to draw a circle with different algorithm	Draw a circle with 1: A Symmetric in increment method of circles 2: Bresenham circle algorithm	Lect. & Lab.	Quiz
6	Th.:3H Pr.: 2H	2D-transformation	2D Transformations : Two-dimensional moving Two-dimensional scaling	Lect. & Lab.	Homework
7	Th.:3H Pr.: 2H	2D- transformation	2D Transformations : Two-dimensional Rotation Two-dimensional shearing	Lect. & Lab.	Exam
8	Th.:3H Pr.: 2H	2D- transformation	2D Transformations : Reflections(X-axis, Y-axis, Origin, line Y=x, line Y=-X, arbitrary line)	Lect. & Lab.	Quiz
9	Th.:3H Pr.: 2H	2D- transformation	Representation 2D-Transformations by matrices and apply it. Two-dimensional moving Two-dimensional scaling	Lect. & Lab.	Homework
10	Th.:3H Pr.: 2H	2D- transformation	Representation 2D-Transformations by matrices and apply it Two-dimensional Rotation Two-dimensional shearing Reflection	Lect. & Lab.	Exam
11	Th.:3H Pr.: 2H	Window & viewport	Representation and planning map in (the system of the real-world[window] and the computer world[viewport])	Lect. & Lab.	Quiz
12	Th.:3H Pr.: 2H	Clipping and drawing	Clipping operations: • Point clipping • Line clipping	Lect. & Lab.	Homework
13	Th.:3H Pr.: 2H	Polygon clipping	Advance Clipping operations: • polygon clipping	Lect. & Lab.	Exam
14	Th.:3H	Mid Exam	Mid Exam	Lect. & Lab.	Quiz

	Pr.: 2H				
15	Th.:3H Pr.: 2H	Polygonal types	Polygonal types, their characteristics, & how to deal with them.	Lect. & Lab.	Homework

2. Course Evaluation

The grade distribution is as follows:

Assessment: Formative 40 marks, Monthly exam 10 marks

Final exam: Theory 50 marks

3. Learning and Teaching Resources

Required textbooks (curricular books any)	None
Main references (sources)	Computer graphics mathematics first step, P. A. Egerto and W. S. Hall .
Recommended books and references (scientific journals, reports...)	- Mathematics for Computer Graphics and Game Programming. New Delhi 2019 - Fundamentals of Computer Graphics 4edition, 2016
Electronic References, Websites	None