

Computer Graphics Lab (ID) (IT-3007)

Course Code	(ID) IT-3007	Credits-2	L -0, T-0, P-2
Name of the Course	Computer Graphics Lab		
Lectures to be Delivered	26 hours of Lab work (2 hours per week)		
Semester End Examination	<i>Max. Marks: 50</i>	<i>Min. Pass Marks: 20</i>	Maximum Time:3hrs
Laboratory Continuous Assessment	Lab work 30%, Lab Record 25%, Viva/ Hands on 25%, Attendance 20%)	<i>Max. Marks: 50</i>	<i>Min. Pass Marks: 25</i>

Instructions for paper setter/ Candidates

Laboratory examination will consist of two parts:

- (i) Performing a practical examination assigned by the examiner (25 marks)
- (ii) Viva-voce examination (25 marks)

Viva-voce examination will be related to the practicals performed / projects executed by the candidate related to the paper during the course of the semester.

List of programs to be developed:

1. Familiarize yourself with creating and storing digital images using scanner and digital camera (compare the size of the image when stored in different formats) and convert the stored images from one format to another (BMP,GIF, JPEG,TIFF,PNG, etc.) and analyze them.
2. Implement Bresenham's line algorithm. Also provide provision to change attributes of the graphic primitives such as stippling (Dotted and Dashed pattern), colors and Butt & round Caps.
3. Implement Bresenham's circle algorithm. Also provide provision to change attributes the graphic primitives such as stippling (Dotted and Dashed pattern) and colors.
4. Implement 2D transformations with translation, rotation, reflection, shearing and scaling.
5. Construct Bezier curves and Spline curves with 6 or more control points entered through mouse.
6. Construct fractal geometrical shapes using linear or non-linear procedures.
7. Consider a scene with two or more three-dimensional (3D) polygonal object. Generate different perspective views of the scene by changing various 3D viewing parameters interactively.
8. Implement tweening procedure for animation with key frames having equal or different No. of edges.
9. Write a program for 2D line drawing as Raster Graphics Display.
10. Write a program for circle drawing as Raster Graphics Display.
11. Write a Program for Polygon Filling as Raster Graphics Display.
12. Write a program for line clipping.
13. Write a program for polygon clipping.
14. Write a program for displaying 3D objects as 2D display using perspectives transformation.
15. Write a program for rotation of a 3D object about arbitrary axis.
16. Write a program for Hidden surface removal from a 3D object.

Note:- At least 5 to 10 more exercises to be given by the teacher concerned.