**Session 4: Implement Circle algorithm in OpenGL**

**Intended Learning Outcome:**

1. Students will be able to implement circle algorithm.
2. Students will be able to draw a circle with center visualization.

 **Expected Skills:**

1. Calculating any point about radius and along axis point (X, Y).
2. Clear idea about drawing a line in first coordinate.

**Tools Required:**

1. CodeBlocks
2. OpenGL and GLUT using CodeBlocks.

**Session Detail:**

#include <windows.h>

#include <GL/glut.h>

#include <stdlib.h>

#include <math.h>

void init()

{

 glClearColor(0.0f, 0.0f, 0.0f, 0.0f);

 glOrtho(-15,15,-15,15,-15,5);

}

void circle(GLfloat rx,GLfloat ry,GLfloat cx,GLfloat cy)//radius\_x,radius\_y,certre\_position\_x,centre\_position\_y

{

 glBegin(GL\_TRIANGLE\_FAN);

 glVertex2f(cx,cy);

 for(int i=0;i<100;i++)

 {

 float angle = 2.0f \* 3.1416f \* i/100;

 float x = rx \* cosf(angle);

 float y = ry \* sinf(angle);

 glVertex2f((x+cx),(y+cy));

 }

 glEnd();

}

void myDisplay()

{

 glClear(GL\_COLOR\_BUFFER\_BIT);

 glColor3f(1.0f, 0.0f, 0.0f);

 circle(3,3,0,0);

 glFlush();

}

int main()

{

 glutInitDisplayMode(GLUT\_SINGLE | GLUT\_RGB);

 glutInitWindowSize(600, 600);

 glutInitWindowPosition(200, 200);

 glutCreateWindow("Circle Application");

 init();

 glutDisplayFunc(myDisplay);

 glutMainLoop();

 return 0;

}