Course Title	**COMPUTER GRAPHICS**
Course Code	**CSC 408**
Course Purpose and Objectives	The purpose of this course is to introduce students to the design and implementation of Computer Graphics applications using 3D techniques. It is essential for the students to assimilate the modeling, rendering and animation stages present in every Computer Graphics application. Topics include primitives, 3D transformations, line clipping, animation, text, Bezier curves, and fractals. Assignments involve computer programming in OpenGL with C++. The selection of the programming language is up to a mutual agreement between lecturer and students at the beginning of the course.
Learning Outcomes	1. Combine knowledge of mathematics, computing and engineering by developing Computer Graphics applications. 2. Critically evaluate the necessity of modeling, rendering and animation techniques in producing Computer Graphics applications. 3. Explain the core concepts of computer graphics, including viewing, projection, perspective, modeling and transformation in two and three dimensions. 4. Test the concepts of color models, lighting and shading models, textures, ray tracing, hidden surface elimination, anti-aliasing, and rendering. 5. Describe the fundamentals of animation, parametric curves and surfaces, and spotlighting. 6. Create effective OpenGL programmes in C++ to solve graphics programming issues, including 3D transformation, objects modeling, color modeling, lighting, textures, and ray tracing.
Course Content	• Introducing Computer Graphics Programming • The OpenGL Graphics Pipeline • Revision of Mathematical, Signal Processing & Engineering Foundations. • Using Graphics Hardware • Managing 3D Graphics Data. • Texture Mapping • 3D Models • Lighting • Shadows • Laboratory Work