CSC314 COMPUTER GRAPHICS

Learning Outcomes

- Demonstrate ability to define computer graphics primitives.
- Be able to distinguish the capabilities of different levels of graphics software and describe the appropriateness of each.
- Be able to create images using a standard graphics API.
- Show ability to use the facilities provided by a standard API to express basic transformations such as scaling, rotation, translation, reflection, shearing etc.
- Demonstrate ability to implement algorithms that perform transformation and clipping operations on simple 2-dimensional and 3-dimensional objects.

Content

Hierarchy of graphics software; Line generation algorithms e.g. DDA, Bresenham.s; Using a graphics API; Simple color models (RGB, HSB, CMYK); Homogeneous coordinates; Affine transformations (scaling, rotation, translation); Viewing transformation; Clipping; Font generation: outline vs. bitmap; Light-source and material properties; Ambient, diffuse, and specular reflections; Phong reflection model; Rendering of a polygonal surface; .at, Gouraud and Phong shading; Texture mapping, bump texture, environment map; Introduction to ray tracing; image synthesis, sampling techniques, and antialiasing.

Pre-requisites

**CSC211 Data Structures and Algorithms**

Delivery

**Lectures, Laboratory Sessions.**