COT 5930 Game Programming

Credits: 3 credits

Text book, title, author, and year: Topical material from the internet. TBA

Software Applications: Microsoft Visual Studio, SFML, Paint.net, Audacity

Specific course information

- Catalog description: Learn how to design and implement video games. The games will be written to run in Windows using MS Visual Studio C++ with SFML and possibly other platforms.

Prerequisites: COP 3530 - Data Structures or Permission of Instructor.

Required, elective, or selected elective: This class is a technical elective in the CS and CE programs.

Specific goals for the course: The primary objective of this course is to provide a good understanding of video game programming. This includes good object oriented design and development practices. The course primarily covers 2D animation and control of Sprites using Finite state Machines. There will be an emphasis on designing and writing reusable code that generalizes the solutions to problems and encapsulates them in objects. We will cover the interaction between sprites, other sprites, and player(s). We will also cover user interface, sounds, game design, and some artificial intelligence. 3D game design will be available as extra credit.

Brief list of topics to be covered:

Simple animation.

Use of SFML with C++

Use of an Game Framework by Thomas Fernandez

Text display during games.

Sounds and Music during games.

User Input from Keyboard and Mouse during games.

Use of Finite State Machines to control game objects.

Pools of Objects for dynamic allocation.

Game Objects made of multiple components that move independently but relative to other objects.

Animation and scrolling of backgrounds.

Use of AI in Game Programming.

Extra Credit will include 3D game development with Unity.

3D objects positioning and rotation (pitch, yaw and roll)

3D Camera Positioning

3D Lighting and Lighting effects