Course Specification for CDT232 Advance Project 1

Goals and Objectives

Be able to implement 2D game engine from scratch using C++. Learn how to program event loop, collision detection, game states and 2D animation.

Course Description and Administration

Implement a simple real-time game or simulation with 2D graphics in teams of three or four members. Technical features include audio effects, music playback, pattern movement, simple artificial intelligence, same-machine multiplayer (no networking), particle systems, scrolling, and simple physics. All projects must be written in C++ with no middleware. Additional topics include basic software architecture, essential development practices, fundamentals of team dynamics, and task prioritization methods.

Study Plan and Assessment

Week	Topic / Content	hours	Activities
1	Review of C++	5	Lecture, Lab
2	Create windows and receive event using GLFW	5	
3	Working with Vector and matrix using GLM, Timer, Game loop	5	
4	2D Renderer using Beta engine	5	
5	Sprite, camera and transformation	5	
6	Asteroid game framework, 2D Physic	5	
7	Bounding box collision	5	
8	Project 1: Asteroid game presentation		
9	2D Platformer	5	Lecture, Lab
10	Gravity and Velocity	5	
11	Collision map 1 - representation	5	
12	Collision map 2 – collision detection and response	5	
13	State machine	5	
14	Particle system	5	
15	Project 2: 2D Platformer game presentation		