COURSE DESCRIPTION

Department and Course Number	CMPS 427	**Course Coordinator**	Jim Etheredge
Course Title	Video Game Design & Development	**Total Credits**	3
URL	www.ucs.louisiana.edu/~jne1390	**Semester hours**	3

Current Bulletin Description

Advanced PC game development using Microsoft Windows, DirectX, and content creation tools. A team-based semester project to develop a 3D game. Teams include both computer science and upper-level art students. Prerequisite: CMPS 327 or consent of instructor.

Textbook

Real-Time Rendering, 2nd Edition, by Moller & Haines
Creating the Art of the Game, by Omernick

References

Microsoft DirectX Software Development Kit 9c (www.microsoft.com)

Course Goals

The course surveys techniques for 3D game development using PCs.

Course Outcomes

Students completing the course should:

- have experience creating a 3D model using a 3D modeling program, such as Lightwave
- understand how to create a 3D model for use in a game
- have experience writing a program to render 3D models
- have experience animating 3D models in a program
- understand the concepts for animating human characters in a game program

Prerequisites by Topic

Introduction to Game Development (CMPS 327)
Computer Graphics (CMPS 415) is recommended

Major Topics Covered in the Course

3D modelling and 3D file formats
Game asset creation
Audio programming
3D Graphics programming

Laboratory projects (specify number of weeks on each)

3D model creation	(2 weeks)
Terrain rendering	(2 weeks)
Rigid-body animation	(2 weeks)
Audio programming	(2 weeks)
Character animation	(3 weeks)

Oral and Written Communications

Every student is required to submit at least 1 written reports (not including exams, tests, quizzes, or commented programs) of typically 3 pages and to make 1 oral presentations of typically 15 minutes duration.

Social and Ethical Issues

Ethical issues discussed in the class include a discussion of software piracy as applied to game software (and other software). Students are not graded on this aspect of the course.

Theoretical Content

3D Graphics
Game engine design
Audio programming
Character animation

Problem Analysis

Students are given assignments using both content creation tools, such as Adobe Photoshop and Lightwave, as well as programming assignments. In all these assignments, students are allowed a great deal of latitude on what to do within general guidelines. For example, students are tasked to create 3D model of a tree but can create any type of tree. In programming assignments students are given similar general direction but can then use their creativity to accomplish the assignments.

Solution Design

Working in teams of 2 or 3 students each, students are expected to produce a design document that describes what they intend to do for the semester project. The instructor provides feedback on the design document after which each team submits a revised document.