

Date: February 2007

I. Course Name: Introduction to 3D Animation
Prefix and Number: CSC 242
Credit Hours and Contact Hours: 3 credit hours – 3 contact hours
Course Description/Content

This course will cover the concepts, principles, and techniques for designing an entire video game. Topics include 3D animation, modeling, texturing, rendering, lighting, cinematography, and the study of motion. Prerequisite: CSC 141.

II. Course Outcomes and Objectives

Learning Outcomes

Upon completion of the course the participant will be able to:

1. Identify the foundations of game creation and design, as well as game concepts and how to define a game's layout and design.
2. Determine the key components of a video game design including low polygon modeling, texturing and animation
3. Design engaging game characters and avatars
4. Develop the internal economy of a game-the flow of resources such as money, points, and ammunition
5. Identify the principles of level design and game balancing

Relationship of course goals to degree programs

This course is required in the proposed Game Programming degree.
Other Computing Science majors can take this as an elective.

Competencies Addresses by this COURSE:

<input checked="" type="checkbox"/> writing	<input type="checkbox"/> ethics/values
<input checked="" type="checkbox"/> oral communications	<input type="checkbox"/> citizenship
<input checked="" type="checkbox"/> reading	<input type="checkbox"/> global concerns
<input checked="" type="checkbox"/> mathematics	<input checked="" type="checkbox"/> information resources
<input checked="" type="checkbox"/> problem-solving	<input checked="" type="checkbox"/> professional competency
<input checked="" type="checkbox"/> computer literacy	

III. Methods of Instruction

Types of Course materials: text book on 3D Modeling for games, appropriate hardware and software

Methods of instruction: The instructor will employ a number of techniques to facilitate a thorough learning experience. Specifically, they will be: lecture of underlying concepts and theories, instructor demonstration, and guided student activities in the microcomputer environment. Activities will emphasize research, problem solving and team work. The students will work on individual programs and toward the end, will work as part of a team.

Assessment measures: Students will be measured on their understanding of the foundations of game creation and design the key components of a video game design, their ability to design engaging game characters and avatars, and game internal economy. They must also be able to identify the principles of level design and game balancing

Methods of Evaluation: The demonstration of the satisfactory achievement of the above learning outcomes will be the responsibility of the student, facilitated by the instructor. Specifically, the following activities must be performed and completed for successful course completion:

- A. Written examinations or quizzes after every significant part of the course as described above, in Learning Objectives.
- B. Assigned projects that support the Learning Objectives above.
- C. Class participation and favorable attendance.

IV. General Outline of Topics covered

- I. Introduction to 3D Modeling & Texturing
 - A. Using Primitives
 - B. Polygonal Modeling
 - C. NURBS Modeling
 - D. “Box” Modeling
 - E. Creating a 3D Environment
 - F. Prop Development
 - G. Character Development
 - H. Character Rigging
 - I. Cameras & Lights
- II. The Principles of Animation
 - A. The Principles of Animation
 - B. Timing
 - C. Anamorphical Animation
 - D. Camera Animation
 - E. Vehicle Simulations
 - F. Camera Animation
 - G. Study of Human/Realistic Motions
 - H. Character Animation
 - I. Animation Concepts & the Review of Technical Tools used in the Game Industry