

I. CATALOG DESCRIPTION

Department Information
Division: Humanities
Department: Art
Course ID: ART 180
Course Title: Beginning Computer Animation
Units: 3
Lecture: 2
Laboratory: 3
Prerequisite: None
Departmental Advisory: ART 148

A. CATALOG DESCRIPTION: Focuses on computer animation, rendering and modeling. The introduction semester emphasizes the construction of space environments and objects in motion. Included are the principles and skills for building objects in a landscape, and changing environmental overtime such as clouds, atmospheric conditions, and reflections.

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II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: one

III. EXPECTED OUTCOMES FOR STUDENTS:

Upon successful completion of the course, the student will be able to:

- A. Analyze and arrange the movement of objects.
- B. Analyze and arrange the placement of cameras, and lights in a still scene.
- C. Analyze and arrange the movement of cameras and lights in an animation.
- D. Plan and execute a key frame path for animation.
- E. Create and use both global and spotlights in a scene.
- F. Create a boolean object in a still scene and in an animated sequence.
- G. Create one linked object out of two or more individual objects.
- H. Apply tracking properties to an object.

IV. CONTENT

- A. Computer modeling
 - 1. The illusion of real space imposed on a 2 dimensional surface
 - 2. The illusion of a solid 3 dimension object used on a 2 dimensional surface
- B. Principles of 3 dimensional modeling
 - 1. Constructing and turning a 3 dimensional object
 - a. Controlling how all sides of an object look and respond
 - b. Constructing a landscape
 - 2. The illusion of 3 dimensional modeling
 - a. The monitor surface as an observer's window
 - b. The inability to walk into the created space
 - 3. Elements that must be considered for realistic modeling
 - a. Terrain construction
 - b. Terrain surfaces
 - c. Atmospheric conditions
 - d. Types of lighting
 - 4. Rendering a still

- C. The principles animation
 - 1. Creating storyboards
 - 2. Creating timelines
 - 3. Key Framing a motion path
 - 4. Altering a motion path
 - 5. Making objects, surfaces and atmospheric conditions change over time
 - 6. Rendering animation
- D. Basic software tools
 - 1. Atmospheric elements in Bryce: a landscape modeling and animating program
 - 2. Tools for constructing boolean models
 - 3. Tools for linking object using the parent child principle
 - 4. Tools for tracking objects
 - a. Camera targeting properties for continually focusing on objects
 - b. Targeting properties for rotating an object in relation to another object

V. METHODS OF INSTRUCTION

- A. Computer demonstrations
- B. Individual assistance
- C. Lectures
- D. Customized intranet tutorials
- E. Storyboard and sketch book assignments
- F. Reading assignments
- G. Supervised projects

VI. TYPICAL ASSIGNMENTS:

Two examples of individual assisted, supervised projects.

- A. Create a canyon landscape using Bryce software
 - 1. Create a landscape using 3 terrains
 - 2. Introduce a simple object into the landscape
 - 3. Make two renderings of the landscape, one with daylight and one with evening light
- B. Animated fly through a landscape
 - 1. With pencil and paper, draw a storyboard before you start
This should be a rough sketch for laying the plot, movement and position of your elements in your key frames
 - 2. Make your first landscape frame. This your first keyframe
 - 3. Add your first object(s) in the scene
 - a. you may add all your object at once or you may add then as the animation progresses
 - 4. Set the animation timeline and the frames per second
 - 5. Move your timeline mark and adjust your objects and at each key frame
This will create paths for each object
 - 6. Check your animation by making small animations before your final render
 - 7. When you have fine-tuned the animation paths, render your detailed movie

VII. EVALUATIONS:

- A. Methods of evaluation
 - 1. Objective evaluation: written tests
 - a. Typical test questions:
 - i. Define Raytracing
 - ii. Why do transparent objects increase rendering times?
 - b. Object drawings and storyboard assignments: Typical assignments
 - i. Plot an object with 3 or more elements on graph paper. Measure the parts.
Draw a 2 dimensional pattern for each part
 - ii. Draw a storyboard for animation. Denote each key frame and indicate the camera angle, the lighting , and the position of each object in the frame

- 2 Subjective evaluation: Completion of 4 projects.
Projects will be accompanied by creative material such as images, drawings and rough layouts used to complete the project.
Projects will be evaluated on the following criteria:
 - a. Originality of the idea
 - b. The clarity of storyboard description
 - c. Steps executed to complete the projects
 - d. Success in achieving the original idea
 - e. Complexity of the work attempted
- B. Frequency of evaluation
1. Two tests
 - a. Mid-term
 - b. Final
 2. Completion of storyboard and sketchbook assignments
 3. Completion of 4 projects

VIII. TYPICAL TEXT(s):

- A. Kitchens, Real World Bryce 4, CA: PeachPit, 2000
- B. MetaCreations Corp., Bryce Users Guide for Macintosh and Windows, CA: 1999

X. OTHER SUPPLIES REQUIRED OF STUDENTS:

One Zip disk, one blank CD-R