GAME 190: INTRODUCTION TO 3D MODELING

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2024
Credits:	3
Total Contact Hours:	108
Lecture Hours :	36
Lab Hours:	72
Hours Arranged:	0
Outside of Class Hours:	72
Total Student Learning Hours:	180
Strongly Recommended:	ART 150, GAME 191.
District General Education:	C1. Arts
Transferable to CSU:	Yes
Transferable to UC:	Yes - Approved
Grading Method:	Standard Letter

Catalog Course Description

This course introduces the concepts of 3D Modeling in a virtual environment. Emphasis is on the introduction of three-dimensional concepts, the use of modeling tools, and menu structures within applications of 3D design systems. Skills taught in this course will give students the ability to create original three-dimensional computer generated models of organic or mechanical design. 36 lecture hours, 72 lab hours.

Course Objectives

- Create 3D models utilizing the fundamental concepts of poly modeling.
- Analyze box modeling and extrusion techniques for use with static and animated game models.
- Analyze the comparative differences of Animation Models constructed from NURBS or Sub-Ds.
- Apply industry standard modeling techniques as a result of comparative analysis of box modeling and extrusion techniques used in Game and Animation Models

Major Course Content

1. Introduction to 3D Concepts
    a. Modules
        i. Modeling
        ii. Animation
        iii. Rigging
        iv. Effects
        v. Rendering
        vi. Lighting
2. Navigation
    a. XYZ Coordinates
    b. Camera
    c. Interface
    d. Hotkeys
3. Orientation
    a. World
    b. Local
    c. Object
    d. Component
    e. Normal
4. Menus
    a. Drop Down Menus
    b. Shelf Menus (Icon Driven)
    c. Marking Menus
    d. Custom Menus
5. Editors
    a. Channel Editor
    b. Attribute Editor
    c. Tool Editor
    d. UV Editor
    e. Graph Editor
    f. Hypershade Editor (Material Editor)
6. File Management
    a. Scene Files
    b. Saving
    c. Project Window
    d. Setting Project
    e. File Import/Export
7. Mesh Components
    a. Object
    b. Vertex Points
    c. Vertex Face
    d. Edge
    e. Face
    f. UV

Lab Content

Practicum Channel Box/Display

1. Channel
    a. Edit
    b. Object
    c. Show
2. Shape
    a. Inputs
3. Display
    a. Layers
    b. Options
    c. Help

Practicum Mesh Modeling

1. Primitive Modeling
2. Basic Box Modeling
3. Basic Edge Extrusion Techniques
4. Basic Face Extrusion

Practicum Modeling Tools

1. Mesh Basics
    a. Combine
    b. Separate
    c. Fill Hole
    d. Smooth
2. Edit Mesh Basics
    a. Extrude
    b. Bridge
    c. Bevel
    d. Merge
3. Mesh Tools Basics
    a. Append to Polygon
    b. Insert Edge Loop
    c. Multi-Cut

Practicum Modeling Deformers Linear/Nonlinear

1. Linear Deformers
    a. Lattice
    b. Wire
    c. Wrap
    d. Blend Shape
2. Nonlinear Deformers
    a. Bend
    b. Flare
    c. Squash
    d. Twist
    e. Wave

Practicum Basic Material Shader & Lighting

1. Types of Lighting Systems
    a. Ambient
    b. Point
    c. Directional
    d. Spot
    e. Area
    f. Volume
2. Types of Materials
    a. Lambert
    b. Blinn
    c. Phong
    d. Phong E
    e. Layered Shader
    f. Ramp Shader

Suggested Reading Other Than Required Textbook

Maya Software manuals, online resources for 3D modeling

Examples of Required Writing Assignments

1 to 2 page essay on proper use of polygon modeling for game art versus modeling for animation.

Examples of Outside Assignments

Create low polygon cottage diorama

Instruction Type(s)

Lab, Lecture

IGETC Area 3: Arts and Humanities

3A. Fine Arts