Common Course Outline
ARTD 240
3D Modeling and Animation
3 Semester Hours

The Community College of Baltimore County

Description

ARTD 240 – 3 Credits – 3D Modeling and Animation explores the creation of 3D imagery for use in both print and interactive media. Major topics include the fundamentals of 3D modeling; including materials, textures, and surfacing, as well as lighting and scene creation. Project workflow and appropriate file formats for print and screen-based delivery are covered as students work through a series of progressively more complex illustration projects.

3 credits; 2 lecture hours per week; 3 laboratory hours per week
Prerequisites: ARTD 116 and ARTD 140, or consent of the program coordinator;

Overall Course Objectives

Upon successfully completing the course students will be able to:

1. navigate a 3D environment;
2. create polygonal and NURBS based objects;
3. edit splines, points, and curves;
4. generate surfaces through sweeps, extrudes, and lofts;
5. apply materials to create realistic surfaces;
6. characterize material properties and purposes;
7. create custom textures for mapping or projection;
8. animate translation of objects;
9. animate a camera using position, tilt, pan, and roll;
10. light a scene; and
11. render scenes as frame sequences and digital video

Major Topics

I. Overview
- A. The working window
- B. Preset Libraries
- C. The Menu Bar
- D. Displaying a scene
- E. Creating Objects
- F. Undoing operations
- G. Cartesian Coordinates
- H. Navigating in three dimensions

II. Production Pipeline Overview
- A. Storyboarding
- B. Modeling
- C. Shading
- D. Rigging
- E. Animation
- F. Rendering
- G. Editing / compositing

III. Creating Objects
- A. Primitive versus procedural objects
- B. Polygons versus NURBS
- C. Drawing and Importing Paths
- D. Extruding
- E. Sweeping
- F. Lofting

III. Editing Models and Attributes
- A. Smoothing
- B. Beveling
- C. Editing Points
- D. Translating
- E. Scaling
- F. Rotating

IV. Materials/Shaders
- A. Shading
- B. Ambience
- C. Diffuse
- D. Specularity
- E. Reflection
- F. Refraction
- G. Color
- H. Texture
- I. Transparency
- J. Image Maps

V. Animation
- A. Key framing
- B. Interpolation
- C. Path Animation
- E. Graph editing

VI. Camera Setup and Animation
- A. Depth of Field
- B. Lenses
- C. Roll, Pan, Tilt
- D. Visualization
- E. Animatics

VII. Lighting
- A. Spot lights
- B. Area lights
- C. Directional lights
- D. Intensity
- E. Color
- F. Decay
- G. Cone
- H. Shadows
- I. Strategy

IX. Rendering
- A. Scanline
- B. Raytracing
- C. Non-realistic
- D. File Formats

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

Projects will include a minimum of two wireframe and textured models, one rendered at high-resolution for print, and one animation sequence.

A minimum of two tests including a final exam.

Other Course Information

This course is taught in a computerized environment.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

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