

Course: 3D Modeling - ARCH 6426 TL -55063

Instructor: Anatoliusz "Tolek" Lesniewski; tolek@coa.gatech.edu

Semester: Short Late Summer 2011

Time: MWF 9:20-11:55, room 359

Office Hours: MWF 12:00pm-1:00pm, room 217a, IMAGINE Lab

Course Description

The intention of this course is to introduce students to principles of 3D computer visualization and animation. Students learn basic concepts on the example of 3ds Max Design 2010 software from Autodesk. Lighting, materials, texture mapping, virtual cameras are introduced incrementally as students work on the tutorials. Procedural materials, rendering, editing and display functions are introduced in a process of modeling architectural interiors and exteriors. Students get an exposure to complex materials, animation techniques and basic scene composition.

The course is conducted in the computer lab environment. It meets for an hour and 20 minutes, twice a week. During each session half the time is spent on introduction of a new material. Remaining time is spent on exercises. Students are using a PC type graphic workstation running Windows XP and Autodesk 3ds Max Design 2010 software from Autodesk. There is one student per station.

Pedagogic Objectives

- To introduce students to basic concept and structure of the computer visualization software
- To learn basic skills in operating visualization and animation software (Autodesk 3ds Max Design 2010)
- To learn basic skills in architectural animation
- To understand advantages and limitations of modeling/rendering software

Course Outline

1. Introduction: environment, layout, menu structure, settings, grids, viewports, helpers.
2. Basic Concepts: object orientation, creation and editing of simple, parametric and compound objects.
3. Basic materials, lighting and animation.
Exercise #1 - Basic modeling and animation.
4. Transforms and Coordinate Systems, Modifier Stack, Copies, References and Instances
5. Selection methods, modifying multiple objects, sub-object operations: vertices, faces, edges and polygons.
Exercise #2 - Sub-object editing.
6. Shapes: Creation and editing, splines and Bezier curves, shape validation, Boolean operations.
7. Loft Objects: creation and editing, path and skin parameters, multiple shapes, deformation grids.
Exercise #3 - Lofted objects.
8. Parametric object creation and editing: walls, doors, windows, stairs, railings, vegetation.
Exercise #4 - Parametric objects.
9. 2D and 3D object import, linking, merge and references:
Exercise #5 - Import and assembly.
10. Lights and shadows:
Exercise #6 - Lighting.
11. Complex objects and materials: Terrain, ShapeMerge, Boolean, Scatter, Connect:
Exercise #7 - Materials
12. Environment: Fog, Volume Lights, Fire:
Exercise #8 - Volumetric fog and lights.
13. Materials and effects animation, Track View:
Exercise #9 - Fire animation.
14. Object and camera animation, Graph Editors, curves and controllers:
Exercise #10 - Camera and object animation.
15. Export: Architectural Desktop, WRML, panoramic views
16. Final Project

Course Evaluation

Performance is evaluated on a basis of:

- 10 Exercises 100%

Literature

- 3ds Max 2009 Bible by Kelly L. Murdock
- How to Cheat in 3ds Max 2009: Get Spectacular Results Fast by Michele Bousquet
- Introducing 3ds Max 9: 3D for Beginners by Dariush Derakhshani, Randi Lorene Munn

Notes:

1) Students with disabilities requiring special accommodations must obtain an accommodations letter from the ADAPTS Office [www.adapts.gatech.edu] to ensure appropriate arrangements.

2) Georgia Tech aims to cultivate a community based on trust, academic integrity and honor. Students are



expected to act according to the highest ethical standards. For policy information on Georgia Tech's Academic Honor Code, please see [http://www.catalog.gatech.edu/rules_regulations/#18].

3) All cell phones should be turned off during class.

4) Students are asked to complete the online course evaluation of all courses at Georgia Tech at the end of the term.

5) In case of emergency (i.e. fire, accident, criminal act), please call the Georgia Tech Police at 894-2500. Please note that Perry Minyard, IT Support Administrator is also a firefighter and an Emergency Medical Technician (EMT) certified in performing CPR.