Glendale Community College November, 2007 Revised: May, 2010

#### COURSE OUTLINE

# Architecture 229 Introduction to 3ds Max for Architecture and Engineering

## I. <u>Catalog Statement</u>

Architecture 229 teaches the fundamentals of the 3ds Max software and its use in the Architecture and Engineering industry. Topics include: residential and commercial building walkthroughs, rendering, and lighting, adding textures and creating presentation files for residential and commercial architecture and engineering development. Current industry standard digital animation software (3ds Max) will be used.

Units -3.0Lecture Hours -2.0Total Laboratory Hours -4.0(Faculty Laboratory Hours -4.0 + Student Laboratory Hours -0.0 = 4.0 Total Laboratory Hours)

Prerequisite: Engineering 109 or Architecture 250.

# **II.** Course Entry Expectations

Skills Level Ranges: Reading 5; Writing 5; Listening/Speaking 5; Math 3.

Prior to enrolling in the course, the student should:

- 1. explain the concepts of two-dimensional (2d) and three-dimensional (3d) design by the completion of projects on paper media or by using a computer-aided-design system;
- 2. demonstrate drafting skills by completion of a series of engineering and architectural working drawings;
- 3. utilize the computer system to complete a series of basic design problems.

# III. Course Exit Standards

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

- 1. use the 3ds Max Interface to perform various architectural and engineering design visualization tasks;
- 2. understand the concepts of rendering, texturing, lighting, and animation as it applies to the visualization and presentation of architectural and/or engineering designs;
- 3. utilize the concepts of post production, managing media, and system resources using the 3ds Max software for architecture and engineering visualization projects.

4. Map modifier

5. Working with maps

#### IV. Course Outline **Total Course Hours: 96 hours** A. User Interface 6 Hours 1. Menus and toolbars 2. Viewports 3. Navigating viewports 4. Viewport customization 5. Application settings B. Objects 3 Hours 1. Selecting objects 2. Managing objects 3. Displaying objects 4. Transforming objects C. Modeling Basics 12 Hours 1. Setup work environment 2. Unit setup 3. Importing models 4. Shapes 5. Splines 6. Meshes and polys 7. Editing mesh objects D. Modeling Techniques 1.5 Hours 1. Lofts 2. Booleans 3. Terrains E. Modeling Modifiers 1.5 Hours 1. Extrude 2. Smooth 3. Optimize 3 Hours F. Materials 1. Materials overview 2. Materials Editor 3. Managing Materials G. Mapping 3 Hours 1. Bitmaps 2. Other mapping types 3. Texture (UVW) maps

H. Lighting Basics		6 Hours
1.	Standard vs. photometric	
2.	Light types and uses	
3.	Creating lights	
4.	Light placement	
5.	Light parameters	
6.	Shadows	
I. Photometric Lighting		6 Hours
1.	Overview	
2.	Exposure control	
3.	Photometric light types	
4.	IES Sun	
5.	IES Sky	
6.	Daylight	
7.	Sunlight	
J. Global Illumination 3 H		3 Hours
1.	Principles of global illumination	
2.	Shaders	
3.	Radiosity	
K. Car	mera Basics	3 Hours
1.	Camera types	
2.	Creating cameras	
3.	Camera placement	
4.	Basic camera parameters	
5.	Lenses	
L. Camera Animation Basics 9 I		9 Hours
1.	Basic animation	
2.	Time and playback overview	
3.	Keyframes	
4.	Basic motion	
5.	Constraints	
M. Rei	ndering	3 Hours
1.	Render scene dialog box	
2.	Render tab overview	
3.	File types	
N. Workflow		3 Hours
1.	Managing scenes	
2.	Import, merge, and export	
3.	File properties	
4	Archiving	

O. Post Production 3 Hours

- 1. Post production overview
- 2. Effects
- 3. Filters and post-production tools
- 4. Matching media to intended audience
- P. Additional Tools

8 Hours

- 1. Rhinoceros, AutoCad and other modeling tools
- 2. Archvision RPC (Rich Photorealistic Content)
- 3. TurboSquid.com and third-party models
- 4. BouJou and other camera matching software
- 5. AfterEffects and Combustion
- Q. Laboratory Assignments Related to Lecture Topics

22 hours

# V. Methods of Presentation

The following instructional methodologies may be used in the course:

- a. lecture;
- b. multimedia;
- c. guest speakers;
- d. individual and group projects;
- e. field trips.

# VI. Assignments and Methods of Evaluation

- 1. Midterm examinations.
- 2. Final individual project (e.g. rendering of an architectural structure and/or mechanical assembly).
- 3. Final examination.

#### VII. <u>Textbook</u>

Murdock, K., 3ds Max 2009 Bible. Current ed.

Hoboken: Wiley Publishing Company, 2009.

10<sup>th</sup> Grade Textbook Reading Level. ISBN: 978-0-470-38130-4.

## VIII. Student Learning Outcomes

- 1. Students will use the 3ds Max Interface to perform various architectural and engineering design visualization tasks;
- 2. Students will explain the concepts of rendering, texturing, lighting, and animation as it applies to the visualization and presentation of Architectural and Engineering designs;
- 3. Students will apply the concepts of post production, managing media, and system resources using the 3ds Max software for Architecture and Engineering visualization projects.