Degree Applicable

Glendale Community College
May, 2010

COURSE OUTLINE

Architecture 230
Advanced 3ds Max for Architecture and Engineering

I. Catalog Statement

Architecture 230 teaches advanced features of the 3ds Max software program. Topics include: advanced architectural and engineering projects, importing of drawing geometry from AutoCAD and other computer-aided-design (CAD) programs, and advanced lighting and texturing techniques. Current industry standard digital animation software (3ds Max) will be used.

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

Prerequisite: Architecture 229.

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. 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.

III. Course Exit Standards

Upon successful completion of the required coursework, the student will be able to:
1. use advanced features of the 3ds Max software to perform various architectural and engineering design visualization tasks;
2. demonstrate advanced concepts of photo-realistic rendering, texturing, lighting, and animation;
3. demonstrate techniques of importing drawing geometry for AutoCAD and other computer-aided-design software.

IV. <u>Course Outline</u> **Total Course Hours: 96 hours**

A. Preparing AutoCAD Files for Import into 3ds Max — 6 Hours
1. Plines
2. UCS coordinates
3. Navigating 3D models in AutoCad
4. Aligning views and creating reference geometry
5. Layer management

B. Importing Geometry — 2 Hours
1. Setup work environment
2. Unit setup
3. Importing models
4. Naming and organizing geometry

C. Advanced Modeling Techniques — 5 Hours
1. Terrains
2. Vegetation
3. Window, door and stair systems

D. Modeling Modifiers — 8 Hours
1. Edit poly
2. Hair and fur
3. Cloth and garment maker

E. Materials — 8 Hours
1. Advanced materials
2. Creating advanced materials
3. Material library
4. Procedural materials
5. Glass, translucent and reflective surfaces

F. Mapping — 6 Hours
1. Unwrap UVW modifier
2. Map channels and multi/sub-objects

G. Lighting Advanced — 8 Hours
1. Advanced global illumination
2. Mental ray light types and uses
3. Advanced light parameters
4. Mental ray shadows

H. Exterior Lighting Advanced — 6 Hours
1. Mental ray sun
2. Mental ray physical sky

I. Global Illumination — 6 Hours
1. Advanced global illumination settings
2. Shaders
3. Radiosity
4. Caustics

J. Camera Advanced 3 Hours
1. Camera advanced parameters
2. Advanced Lenses
3. Depth of field and motion blur

K. Camera Animation Advanced 3 Hours
1. Advanced camera tracking
2. Re-scaling time
3. Keyframes
4. Advanced controllers
5. Advanced constraints
6. Curve editor and other tools to enhance realism

L. Rendering 10 Hours
1. Mental ray
2. Rendering settings
3. Network rendering
4. V-Ray, Brazil, Maxwell and other render engines

M. Post Production 3 Hours
1. Advanced post production
2. Particle effects
3. Lens effects
4. Filters and post-production tools
5. Camera matching

N. 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. Textbook

Cusson, R., Realistic Architectural Visualization with 3ds Max and Mental Ray. Current ed. Burlington: Focal Press, 2009.
10th Grade Textbook Reading Level. ISBN: 978-0-240-80912-0.

VIII. Student Learning Outcomes

1. Students will utilize the advanced features of the 3ds Max software to perform various architectural and engineering design visualization tasks.
2. Students will demonstrate advanced concepts of photo-realistic rendering, texturing, lighting, and animation.
3. Students will demonstrate techniques of importing drawing geometry for AutoCAD and other computer-aided-design software.