

WEST VALLEY COLLEGE

Course Outline

Department: Architecture

Course Number and Title: ARCH 065 - Advanced Architectural Desktop & 3D Rendering

Length of course in weeks: 16

Units: 3

Total Class Hours/Week: 6

Lecture Hours/Week: 2

Lab Hours/Week: 4

Grade Type: Grade/Credit/No Credit

Catalog Description: This course is an advanced Autodesk: Architectural Desktop & VIZr two AutoCAD based softwares specifically designed for use by architecture, interior design, and civil engineering professionals. This course familiarizes both novice and experienced 3D artists with the process and capabilities of the ADT/VIZr tool set. The course focuses squarely on the process of developing projects with ADT and VIZr. Students will learn how to use each tool to its maximum benefit, as well as why it is important to the overall process. This course emphasizes the creation of a set of construction documents and advanced rendering perspectives from a 3D model of a building project and its context.

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Prerequisites:

ARCH 054: Introduction to Architectural Desktop or

ID 066: Advanced AutoCAD or

DRAFT 075: Advanced AutoCAD

Course Outcomes: Student Learning Outcomes

Outcome: Evaluate software options and use the most efficient to complete 3D drawings & renderings.

Assessment: In-class and homework drawing assignments.

Course Objectives: Upon completion of this course the student should be able to:

1. Use a computer for development of 3D models of building projects with Architectural Desktop.
2. Create a set of construction documents including drawing sheets of plans, elevations, sections, and details from the created 3D building model.
3. Create a set of presentation boards of interior, exterior, and landscape perspectives with color renderings from the created 3D building model.
4. Efficiently draw and analyze different arrangements for the same site.
5. Recognize best rendering solution by use of different types of tools & methods.

Assessment: Students in this course will be graded base on the following four categories:

1. **Writing Assignments:** laboratory reports
2. **Problem Solving Demonstrations:** homework problems
3. **Skill Demonstrations:** class and exam performances
4. **Examinations:** Final drawings

Repeatability: 1 time

Methods of Instruction: Lecture & Lab

Lecture Content:

- | | |
|---|---------|
| 1. Introduction & Methodology.
The User Interface.
Conceptual Underpinnings of Architectural Desktop.
Work Space Setup.
The Building Model.
Beginning a Floor Plan Layout.
Setting Up the Building Model.
Column Grids & Structural Layout.
Vertical Circulation.
The Building Shell.
Mastering Wall Cleanup.
Progressive Refinement
Horizontal Surfaces.
Construction Documents.
Creating Reflected Ceiling Plans.
Generating Annotation.
Generating Schedules.
Generating Sections & Elevations.
Generating Details & Keynotes.
Plotting Customized Color Rendering. | 50.00 % |
| 2. Setting up a Camera & Creating a Perspective.
Exterior & Interior daylight rendering.
Nighttime Scenes.
Shadow Play.
Orthographic Renderings.
Sun-study Animation.
Creation of Renderings Based on Real Project-Based Scenarios.
Discovery of Exactly What is Needed to Use a Rendering Software for Professional-Looking Results. | 50.00 % |

Lab Content:

- | | |
|--------------------------------------|--------|
| 1. Beginning a Floor Plan Layout. | 2.50 % |
| 2. Setting Up the Building Model. | 2.50 % |
| 3. Column Grids & Structural Layout. | 2.50 % |
| 4. Vertical Circulation. | 2.50 % |

5. The Building Shell.	2.50 %
6. Mastering Wall Cleanup.	2.50 %
7. Progressive Refinement.	2.50 %
8. Horizontal Surfaces.	2.50 %
9. Construction Documents.	2.50 %
10. Creating Reflected Ceiling Plans.	2.50 %
11. Generating Annotation.	2.50 %
12. Generating Schedules.	2.50 %
13. Generating Sections & Elevations.	2.50 %
14. Generating Details & Keynotes.	2.50 %
15. Plotting Customized Color Rendering.	2.50 %
16. Setting up a Camera & Creating a Perspective.	5.00 %
17. Exterior & Interior daylight rendering.	10.00 %
18. Nighttime Scenes.	5.00 %
19. Shadow Play.	5.00 %
20. Orthographic Renderings.	7.50 %
21. Sun-study Animation.	10.00 %
22. Creation of Renderings Based on Real Project-Based Scenarios.	10.00 %
23. Determining What is Needed to Use a Rendering Software for Professional-Looking Results.	10.00 %

Critical Thinking: Analyze the differences of a set of construction documents created with 2D software vs. those created from a 3D model for the same project.

College Level Required Reading, Writing, and other Outside-of-Class Assignments: Over a 16 week presentation of the course, three hours per week are required for each unit of credit. Two hours of independent work done out of class are required for each hour of lecture. Outside of the regular class time the students in this class will be doing the following outside of class:

- **Problem solving activity or exercise:** 2.00 additional hours
- **Practice Skills:** 2.00 additional hours

Textbooks:

1. Aubin, Paul F. Mastering Autodesk Viz Render 2006, A Resource For Autodesk Architectural Desktop Users. 2nd ed. Autodesk Press, 2006. ISBN: 9781418039639
2. Aubin, Paul F. Mastering Autodesk Architectural Desktop 2006. 4th ed. Autodesk Press, 2005. ISBN: 9781418020521