Department: Architecture & Engineering

Course Number and Title: ARCH 066 - Advanced Revit Architecture

Length of course in weeks: 16
Units: 3
Total Class Hours/Week: 8
Lecture Hours/Week: 2
Lab Hours/Week: 4
Lab Hours by Arrangement/Week: 2

Grade Type: Grade or pass/no pass

Catalog Description: This course is an advanced Autodesk: Revit Architecture software specifically designed for use by architecture, landscape architecture, interior design, and civil engineering professionals. This course familiarizes both novice and experienced 3D artists with the process and capabilities of the Revit tool set. The course focuses on the process of developing projects with Revit. 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.

Schedule Description: This course is an advanced Autodesk: Revit Architecture software specifically designed for use by architecture, landscape architecture, interior design, and civil engineering professionals. This course familiarizes both novice and experienced 3D artists with the process and capabilities of the Revit tool set.

Prerequisite:
ARCH 058, Introduction to Revit Architecture

Recommended Preparation:
MATH 902: Arithmetic Functions

Course Outcomes: Student Learning Outcomes

Outcome: Evaluate software options and use the most efficient to complete 3D models and renderings.
Assessment: In-class and homework drawing assignment.

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 Revit Architecture.
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, at minimum, in at least one of the following four categories. Please check where appropriate; however, a degree-applicable course must have a minimum of one response in category 1, 2, or 3. If category 1 is not checked, the department must explain why substantial writing assignments are an inappropriate basis for at least part of the grade:

1. Writing Assignments: Written description on assignments and projects.
2. Problem Solving Demonstrations: homework problems
3. Skill Demonstrations: class performance (exam)
4. Examinations: Completion

Repeatability: 2 times.

Methods of Instruction: Lecture & Lab

Lecture Content:

Part I: Fundamentals. 10.00 %
1 Beyond Basic Documentation.
2 The Principles of Revit: Tools and User Interface.
3 The Basics of the Revit Toolbox.

Part II: The Revit Workflow. 15.00 %
4 Configuring Templates and Standards.
5 Managing a Revit Project.
6 Understanding Worksharing.
7 Working with Consultants.
8 Interoperability: Working Multiplatform.

Part III: Modeling and Massing for Design. 20.00 %
9 Advanced Modeling and Massing.
10 Conceptual Design and Sustainability.
11 Phasing, Groups, and Design Options.
12 Visualization.

Part IV: Extended Modeling Techniques. 15.00 %
13 Walls and Curtain Walls.
14 Roofs and Floors.
15 Family Editor.
16 Stairs and Railings.
Part V: Documentation.
17 Detailing Your Design.
18 Documenting Your Design.
19 Annotating Your Design.
20 Presenting Your Design.

Part VI: Construction and Beyond.
21 Revit in Construction.
22 Revit in the Classroom.
23 Revit and Virtualization.
24 Under the Hood.
25 Direct to Fabrication.
26 Revit for Film and Stage.
27 Revit in the Cloud.

Lab Content:

1. Assignment/s on Configuring Templates and Standards.  4.00 %
2. Assignment/s on Managing a Revit Project.  5.00 %
3. Assignment/s on Advanced Modeling and Massing.  30.00 %
4. Assignment/s on Conceptual Design and Sustainability.  5.00 %
5. Assignment/s on Phasing, Groups, and Design Options.  5.00 %
6. Assignment/s on Phasing, Groups, and Design Options.  5.00 %
7. Assignment/s on Visualization.  10.00 %
8. Assignment/s on Walls and Curtain Walls.  5.00 %
9. Assignment/s on Roofs and Floors.  3.00 %
10. Assignment/s on Family Editor.  5.00 %
11. Assignment/s on Stairs and Railings.  5.00 %
12. Assignment/s on Detailing Your Design.  5.00 %
13. Assignment/s on Documenting Your Design.  5.00 %
14. Assignment/s on Annotating Your Design  3.00 %
15. Assignment/s on Presenting Your Design  5.00 %

Arranged Lab Content:

1. During the arranged lab hours, instructor will help and troubleshoot students on the following topics and assignments:
   Beyond Basic Documentation.
   The Principles of Revit: Tools and User Interface.
   The Basics of the Revit Toolbox.
   Configuring Templates and Standards.
   Managing a Revit Project.
   Understanding Worksharing.
   Working with Consultants.
   Interoperability: Working Multiplatform.
   Advanced Modeling and Massing.
   Conceptual Design and Sustainability.
   Phasing, Groups, and Design Options.
Visualization.
Walls and Curtain Walls.
Roofs and Floors.
Family Editor.
Stairs and Railings.
Detailing Your Design.
Documenting Your Design.
Annotating Your Design.
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Revit in Construction.
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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:

1. Problem solving activity or exercise: 2.00 additional hours
2. Practice Skills: 2.00 additional hours

Textbooks: