INTDS 289 Computer Aided Design III
Course Outline

Summary

- This class emphasizes the interior design process while teaching the technical skills needed to learn advanced computer aided design software.
- An interior renovation project will be used throughout the course to (1) illustrate how best to integrate design software into the phases of an interior design project; and (2) provide the structure for demonstrations of the technical skills.
- Efficiency will be stressed by demonstrating the ability to go from schematic design to design development to working drawings to construction drawings, all with the same model.

I. Schematic Design in Building Information Modeling
    A. Modeling Existing Conditions
        1. Objectives:
            a) Understand the difference between building information modeling and sketch modeling
            b) Understand the structure of BIM models
            c) Master basic modeling, including generating walls and floors
            d) Understand component families and instances
        2. BIM overview
        3. Building program for a complex project
        4. Modeling overview
        5. Drawing the exterior walls
        6. Modeling floors
        7. Modeling the roof
        8. Interior partitions
        9. Adding doors
        10. Inserting windows

    B. Bubble Diagrams
        1. Objectives:
            a) Draw simple lines and shapes
            b) Create and modify filled regions and groups
            c) Understand how BIM defines rooms
            d) Create and apply and automatic color scheme
        2. Drawing a bubble diagram
        3. Adding linear graphics and hatching

    C. Block Diagrams
        1. Objectives:
            a)   Convert a bubble diagram into a block diagram
            b)   Understand reference levels and how plans refer to them
            c)   Understand phasing and view phase filters
        2. Adapting the bubbles

3. Adding a level
4. Demolition plan and elevations
5. Phase filter graphic controls

D. Starting the Design
1. Objectives:
    a) Generate new walls from the block diagram
    b) Develop basic editing skills
    c) Understand inserting and manipulating components
    d) Understand creating and modifying ceilings
2. Drawing new partitions
3. Modeling ceilings
4. Populating the model with components
5. Perspective views
6. Complex parametric objects: stairs
7. Exporting images for presentations

II. Working Drawings and Documentation in Building Information Modeling

A. Design Development Drawings and Diagrams
1. Objectives:
    a) Add dimensions to a drawing
    b) Understand wall types and how to represent them
    c) Model complex elements within BIM
    d) Understand how to import SketchUp-based custom objects
    e) Create interior elevations
    f) Create and complete various legends and schedules
2. Dimensioning the drawing
3. Defining wall construction
4. Automated schedules
5. Complex custom components
6. Solid modeling
7. Axonometric views
8. Interior elevations
9. Legends

B. Construction Documents
1. Objectives:
    a) Modify BIM elements for unique configurations
    b) Create and modify construction detail views
    c) Lay out and print a set of drawings
2. Sloped ceilings and dormers
3. Ramps and railing construction
4. Inserting CAD details
5. Complex details
6. Specialty plans: switching
7. Annotation
    a) Automated material annotation
    b) Demolition keynotes
    c) Tags
8. Composing the title sheet
9. Printing a set of drawings

C. Finalize Construction Documents to Communicate Design Intent
1. Objectives:
    a. Incorporate written comments and instructor mark-ups in existing documents
    b. Create and modify BIM model to reflect final construction intent
    c. Create all necessary schedules and materials lists from BIM model
    d. Print a finalized set of construction documents
2. Review drawing set with peers and instructor