BUILDING INFORMATION MODELING: REVIT FUNDAMENTALS

Location: **Online**
Instructor: **Prof. M.T.Chang, Phd.**
Office: **By appointment**

COURSE DESCRIPTION

Building Information Modeling (BIM) is transforming architectural design and construction practice by combining 3D geometry with building component data. Representing the building spaces, systems, materials and costs in one integrated database allows more seamless collaboration throughout the building life-cycle. Enabling clients, designers, engineers and builders to see how building systems come together improves efficiency, reduces errors and allows control of greater complexity.

COURSE OBJECTIVES

This course will introduce students to using BIM for architectural design exploration, communication, and construction. The class will introduce essential software concepts and hands-on operations with Revit. Hands-on exercises will lead students through the software interface, standard construction systems, creating parametric families and preparing construction documents.

COURSE FORMAT

This course will be weekly topic with lectures, exercises, and homework assignments. Lectures will be presented in each class online. Selected guest speakers from prominent firms will present their use of the program in youtube. As an option, students can creatively use this class as an opportunity to integrate their own projects; however, this course's main focus is to introduce a software as a tool..

SOFTWARE AND HARDWARE

It is entirely students' responsibility to setup their own computer with software tools to complete the assigned work. It is student's responsibility to obtain software for this class' use. You also need a capable computer to do our class activities. I am NOT responsible of setting up your computer, or tech support your software. Since this class is conducted entirely online, and we are NOT conducted this course in the cadLAB, so do NOT rely on school to provide you with software or hardware. Students are responsible for making back-up copies of their work and keeping track of them. Work that is not submitted on time because of hard drive or flash drive failure will be penalized as late. Our official class cloud space is:
Google Drive
It is free, and use ssaonlinecourse@gmail.com to share your files with me. You will NOT able to complete this course without file sharing with me! Please use mtchang@ccny.cuny.edu for correspondent.

SOFTWARE IN SPOTLIGHT

Autodesk Revit 2018 to 2021- free for students to download. Autodesk AutoCAD- free for students to download. Please do NOT use Revit 2022. Your assignment won't be graded, if you use Revit 2022.

EVALUATION

This is a three credit course that will take up a semester online. DO NOT THINK THAT YOU CAN FINISH THIS COURSE IN A DAY! SET ASIDE AT LEAST 5+ HOURS A WEEK TO DO THIS COURSE.
Please keep this in mind as the required commitment from you for this course.
We don't meet in a classroom setting, but you are required to go to our class room website to complete all necessary components in order to receive a passing grade.

Assignments

Assignments will be graded based on how well they show understanding of the specific learning objectives; thoroughness, completeness, and care in completing the exercise; graphic and aesthetic quality; seeking out help when necessary.

On most assignments it will be possible to go beyond the minimum requirements, explore additional features of the software, and take the assignment further. This is recommended, and will be considered in grading. There will be a limited number of extra credit assignments.

The assignment for the entire term will be on our website that you will develop further each week. Student building Revit files will be submitted each week for review and should clearly demonstrate understanding and practice of the topics discussed the previous week. At the end of the term all the buildings will be brought together in one class site model to show how to use collaboration in the program.

Class Information

The class is an entirely online course. You will diligently do class activities every week, in order to pass a course.

You need to obtain a Gmail account to use Google drive. You need to submit your assignments on to the Google drive every week. YOU WILL NOT ABLE TO PASS THIS COURSE, IF YOU DIDN'T SHARE YOUR ASSIGNMENTS ON YOUR GOOGLE DRIVE WITH ME. You fail to share your works with me, and it means that you fail to do your assignments. There will be a submission form for you to submit your works online.

Quiz will be throughout every session! You can try as many times to pass, but only the last four attempts will be recorded. You will NOT get any score, if you fail to pass any quiz more than 4 times. Please see grading policy for further explanation.

Grade Breakdown

See Grading Policy.

(Note: Late assignments may NOT be accepted!)

Academic Misconduct: The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act.

COURSE SCHEDULE: *(the schedule is subject to change to respond to the class need and pace)*

Course Introduction.

Section1
The Revit Interface
Exercise 1-1
Using the Steering Wheel & ViewCube 1-8
Exercise 1-2
Changing the View Background 1-15
Exercise 1-3
Closing and Opening the Project Browser and Properties Palette 1-17
Exercise 1-4
Changing the Ribbon Display 1-18
Exercise 1-5
Temporary, Permanent, and Listening Dimensions 1-20
Exercise 1-6
Setting File Locations 1-46
Exercise 1-7
Adding the Default Template to Recent Files 1-47
Quiz 1 Q1-1

Section2
Mass Elements
Exercise 2-1
Shapes 2-2
Exercise 2-2
Create a Conceptual Model 2-9
Exercise 2-3
Adding an In-Place Mass 2-12
Exercise 2-4
Modifying Mass Elements 2-15
Exercise 2-5
Create Wall By Face 2-22
Exercise 2-6
Adding Doors and Windows 2-27
Exercise 2-7
Creating a Conceptual Mass 2-32
Exercise 2-8
Using a Conceptual Mass in a Project 2-40
Additional Projects AP2-1
Quiz 2

Section3
Floor Plans
Exercise 3-1
Placing a Grid 3-2
Exercise 3-2
Placing Walls 3-5
Exercise 3-3
Converting an AutoCAD Floor plan 3-13
Exercise 3-4
Wall Properties 3-19
Exercise 3-5
Add Level 1 Interior Walls 3-26
Exercise 3-6
Add Level 2 Interior Walls 3-29
Exercise 3-7
Add Doors 3-33
Exercise 3-8
Adding Stairs 3-35
Exercise 3-9
Creating a Handrail on a Wall 3-41
Exercise 3-10
Modifying the Floor Plan – Skills Review 3-46
Exercise 3-11
Defining a 2-hr Wall 3-49
Exercise 3-12
Adding an Elevator 3-50
Exercise 3-13
Load Family 3-57
Exercise 3-14
Mirror Components 3-62
Exercise 3-15
Create a 3D View 3-65
Exercise 3-16
Copying Lavatory Layouts 3-38
Exercise 3-17
Add a Door to a Curtain Wall 3-71
Exercise 3-18
Modifying a Curtain Wall 3-77
Exercise 3-19
Curtain Wall with Spiders 3-81
Exercise 3-20
Adding Windows 3-85
Exercise 3-21
Floor Plan Layout

Section4
Materials
Exercise 4-1
Modifying the Material Browser Interface 4-3
Exercise 4-2
Copy a Material from a Library to a Project 4-10
Exercise 4-3
Create a Custom Material Library 4-14
Exercise 4-4
Create Paint Materials 4-15