8/14/2012 Fall, 2012 Rev. 0



Course Syllabus

Fall, 2012

COURSE DESCRIPTION

This semester will be entirely focused on the application of BIM (Building Information Modeling) to the estimating process through the application of three specific programs. AUTODESK REVIT, TIMBERLINE COST ESTIMATING, and INNOVAYA.

These programs are brand new and represent industry state of the art applications and will be reinforced by numerous guest speakers from industry.

Three (3) Semester Hours

PROFESSOR

Dr. Gregory P. Wilson, P.E.

CONTACT INFORMATION

Office:	218 AG/IT Bldg.	
Office Hours:	As Posted	
	Others by Appointment	
Telephone:	903-468-8115 (Direct)	
Email:	gregory.wilson@tamuc.edu	(NEW EMAIL)

CLASS MEETINGS INFORMATION

TR 0800 – 0915 AGIT 218

Significant time will be required to cover all of the course material OUTSIDE OF CLASS HOURS. This course is VERY LABOR INTENSIVE. Each student is expected to spend whatever time is required to complete the required assignments.

COURSE OUTLINE & OVERVIEW

This list of skill sets and activities represents a preliminary schedule of the material to be presented and developed during the semester and will be modified as necessary. <u>It is expected that each student will perform ALL activities presented and develop personal abilities in all of the software presented during the course.</u>

The semester is divided into four (4) basic components as follows:

- 1. REVIT ARCHITECTURE AND STRUCTURE (5-6 Weeks)
- 2. TIMBERLINE ESTIMATING AND PRICING (5-6 Weeks)
- 3. INNOVAYA Software (2-3 Weeks)
- 4. <u>SEMESTER PROJECT (Each student will develop on an individual basis</u> <u>and present to a team of industry representatives)</u>

Following is a preliminary schedule of skill sets that will be presented during the course:

1. <u>**REVIT ARCHITECTURE AND STRUCTURE (Developed throughout semester)</u>**</u>

COURSE\Topics	Objectives
REVIT 101	
Intro to Revit	Overview of the Revit interface (toolbars, project browser, element properties), view creation and properties, navigating 2D and 3D views
Project Setup	Origin location; grid creation, naming, pinning, dimensioning, & locking; level creation
Project Setup Lab	Setup a basic Revit project
STRUCTURE BASICS	
Piers	Manual pier placement and placement using grid intersection, family duplication, instance properties, element properties
Grade Beams & Pier Caps	Pier placement, type duplication, instance properties, element properties
Slabs	Creating slab family structure; drawing, picking, and trimming slab boundary line
Slab Edges	Editing and placing slab edges
Foundation Elements Lab	Creating foundation elements
Elevated Structure: Columns & Beams	Placing columns and beams using manual and automated methods, creating new column and beam types
Beam System	Create and modify beam systems
Structural Walls	Placing walls, attaching base\top, editing wall profile, creating wall family structure
Copying up levels	Using copy and paste to level to create vertical structure
Elevated Structure Lab	Creating elevated structure model elements

STRUCTURE ADVANCED	
Work Planes	Creating, copying, naming, and setting work planes
Shaft Openings & Elevator Pits	Creating elevator pits using shaft, wall, and slab tools
Beams, Floor & Wall Openings	Create openings in beams, floors, and walls using various tools
Stairs: Steel Pan & Monolithic	Stair creation by sketching runs and landings, editing instance and type properties of stairs
Elevator and Stair Lab	Creating elevator shafts, pits, and stairwells
Trusses	Placing trusses, editing profile, and modifying truss members
Beam Joining and Coping	Adjust beam and column joins, cut members using work planes,
Kickers, Bracing, & Brick Ledges	Place miscellaneous structural members like kickers, bracing, and brick ledges
Sloped Framing Members	Adjust elevations of framing members to create sloped decks and pitched roofs
Sloped Roof Decking	Model sloped and pitched decks using a slope line, slope defined boundaries, and control points
Advanced Framing Lab	Model sloped, brace, and truss members; model pitched roofs
ARCHITECTURE BASICS	
Exterior Walls	Placing layers of stud, sheathing, and finish walls; using the "disallow join" command
Windows & Doors	Creating openings in walls, joining wall layers, placing windows and doors
Curtain Wall & Storefront	Placing curtain wall using the wall tool, modifying curtain wall properties, adding and modifying curtain wall grids, modifying curtain wall panels,
Wall Reveals & Sweeps	Creating profiles for and placing wall reveals and sweeps
Architectural Walls Lab	Placing and modifying various types of architectural walls
Floor and Wall Finishes	Creating floor and wall finishes, such as hardwood, carpet, and tile
Casework & Countertops	Placing, modifying, and creating custom casework and countertops
Lighting	Placing and modifying light fixtures
Architectural Interiors Lab	Placing and modifying interior architectural components
ADCHITECTUDE ADVANCED	

ARCHITECTURE ADVANCED	
Rooms & Spaces	Creating and placing rooms and spaces within model
Phases	Creating and assigning phases to model elements
Inserting Revit Models & CAD	Using extrusions, sweeps, blends, and swept behinds to create solid and void geometry
Schedules	Creating, modifying, and formatting schedules
Advanced Architecture Lab	Adding information to models like rooms and phases, and scheduling elements

FAMILY CREATION	
Family Creation Intro	Introduction to family creation, family templates, and the family editor
Work Planes and Parameters	Adding work planes and parameters to family, flexing families
Solid Modeling	Using extrusions, sweeps, blends, and swept behinds to create solid and void
	geometry

Nesting Families

Placing families inside other families, linking parameters

2. TIMBERLINE ESTIMATING AND PRICING (5-6 Weeks)

http://www.youtube.com/watch?v=kJqBFbFjcuM

Given there is no text, the above hyperlink is an excellent introduction and instructional video on the use of the TIMBERLINE estimating and pricing software and will serve as the basis for the introduction and use of the program.

TIMBERLINE works directly with REVIT ARCHITECTURE and INNOVAYA to produce a "visual" estimate directly as you will see during demonstrations.

3. INNOVAYA Software (2-3 Weeks)

The tutorials and study guides for this phase of the semester is being developed and not yet available at the time of the preparation of the syllabus. It will however be available at the beginning of the semester.

Representatives of local firms using INNOVAYA including the author of the program will be on campus for personalized instruction (if all goes as planned).

4. ELECTRONIC PLAN FORMAT

All project plans and drawing will be delivered in electronic form. It is expected that all students will develop the ability to read these documents and develop REVIT models from that media.

ASSESSMENT OF STUDENT OUTCOMES

Upon satisfactory completion of this course, the student:

- 1. Is prepared to demonstrate the ability to develop three dimensional models of commercial structures using REVIT ARCHITECTURE.
- 2. All project plans and drawing will be delivered in electronic form. It is expected that all students will develop the ability to read these documents and develop REVIT models from that media.
- 3. Is prepared to demonstrate the ability to develop quantities and pricing by applying TIMBERLINE software to REVIT ARCHITECTURE and REVIT STRUCTURE models.
- 4. Is prepared to demonstrate the ability to develop VISUAL estimates by the application of INNOVAYA software to REVIT/TIMBERLINE three dimensional models.

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ASSESSMENT OF STUDENT OUTCOMES (continued)

5. Is prepared to demonstrate the ability to read and understand project drawings and develop three dimensional REVIT ARCHITECTURE and REVIT STRUCTURE models.

COURSE TEXT

Walker's Building Estimator's Reference Book. latest edition. Frank R. Walker Company. (Publisher) ISBN 0-911592-28-8



Text is for reference both during the course and following graduation. Always an excellent source for construction cost data.

An additional text may be required for REVIT. Still looking.

ATTENDANCE POLICY

Every student is expected to attend every class. No effort will be made to track down missing students and/or assignments. Each student is responsible for turning in the assigned work.

LATE WORK

NO LATE WORK IS ACCEPTED.

COURSE GRADING

REVIT ARCHITECTURE/STRUCTURE	500
TIMBERLINE ESTIMATING/PRICING	500
INNOVAYA VISUAL ESTIMATING	500
FINAL PROJECT	

TOTAL POINTS_

_2500 PTS

8 Point Percentage Grading Scale will be used throughout the semester.		
92 – 100	=	Α
84 - 91	=	В
76 - 83	=	С
68 - 75	=	D
< 68	=	F

CLASSROOM POLICIES

USE OF CELL PHONES WILL NOT BE TOLERATED.

ACADEMIC INTEGRITY

Academic dishonesty of any kind will not be tolerated. You run the risk of receiving a failing grade in the course in addition to expulsion from the University. Please refer to <u>*Code of Student Conduct*</u> in the Student Handbook for all details.

NOTE!

STUDENT BEHAVIOR

Members of the student body at Texas A&M University-Commerce are expected to obey all federal, state, and local laws in addition to the regulations of the University.

ADA

Each division within the University is aware of the needs of the disabled student and is ready and willing to work with each student to solve problems as they arise. The Supervisor of Services is located in the Student Services Building, 3rd. floor, (903)- 886-5835. The Compliance Office for the Disabled is located in the Business Administration Building 2nd. Floor, room 296.

STUDENT SIGNATURE PAGE

Your signature on this page signifies that you have **READ** and **UNDERSTAND** the contents of this syllabus and have had **ALL** questions answered. Please Print out a copy of this page, sign and turn in.

Student Signature

Printed Name

Date

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