**DFTG 2331 – Advanced Cad Architectural**
Course ID: 76156 – Spring 2011
Stafford Campus – Room E101 | 8:00 am - 2:00 pm | Fri
2 hour lecture – 4 hour lab for 16 weeks

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## COURSE DESCRIPTION:

This course covers the basics of Revit Architecture 2011, from schematic design through construction documentation. You will be introduced to the concepts of building information modeling and the tools for parametric building.

**PREREQUISITE:** DFTG 1305, DFTG 1309. Working knowledge of drafting, design, and architecture design principles

**TEXT BOOK**: All students will be required to purchase the text book:

**Autodesk Revit Architecture 2010/2011 for Architects & Designers.**
Author: Sham Tickoo.

**Working Study Guide for Technical Drafting 1**
Author: Melvin R.Freemen

## MATERIALS REQUIRED:

- Writing Materials (Note book, pen)
- 1-32 MB Flash Drive (256 or larger recommended)
- Headphones for computer

## COURSE GOALS:

Use of architectural specific software to execute the elements required in designing standard architectural exhibits utilizing custom features to create walls, windows and specific design requirements for construction in residential/commercial and industrial architecture.

**LEARNING OUTCOMES**:

- Understand parametric modeling principals
- Analyze a Solid Model for Area, Material, Properties and Mass
- Understanding of solid module's and parametric constrains commands
- To be able to build and edit solid model using parametric processes
- To convert solid model to working drawings by using commands and options

**COURSE OBJECTIVES:**

- Describe building information modeling, and parametric relationships in Revit
- Understand the user interface, parametric objects, and families, and start projects using templates
- Create and modify levels and grids
- Create a basic floor plan, add and modify walls and compound walls, use editing tools, and work with doors and windows
- Work with component families
- Duplicate and manage views, control object visibility in views, and create elevation, section, and 3D views
- Learn how to use dimensions and constraints
- Create floors and ceilings, add roofs and curtain walls, and work with stairs and railings in a building model
- Learn how to create callout views and work with text and tags, detail views, and drafting views
- Create schedules, rooms and room schedules, and legends and keynotes
- Create topography of the site
- Create and annotate details
- Import and export files
- Add keynotes and legends
- Work with drawing sheets and title blocks, manage revisions, and present the building model using rendering, walkthroughs, and sun and shadow settings.

**COURCE CURRICULUM STATEMENT:**

- Introduction to Autodesk Revit Architecture 2011
- Getting Started with Revit Architecture, Creating the First Project
- Using Basic Building Components -1
- Using the Editing Tools
- Working with Datum and Creating Standard Views
- Using Basic Building Components -2
- Using Basic Building Components -3
- Adding Site Features
- Using Massing Tools
- Adding Annotations and Dimensions
- Creating Project Details and Schedules
- Creating Drawing Sheets and Plotting
- Creating 3D Views
- Rendering Views and Creating Walkthroughs
- Using Advanced Features

**GRADING:** Exams and assignments will be given during the semester that will determine how successful you are at mastering the course material and basic skills. If you are having limited success at mastering the course material, contact the instructor for assistance.

**Grading Scale**
90-100      A
80-89       B
70-79       C
60-69       D
Below 59    F


**Grading Percentage**
Assignments        70% of the final grade
Final exam         25% of the final grade
Attendance          5% of the final grade


**STUDENT ASSIGNMENTS:** Drawing assignments from each chapter will be assigned to enhance the learning of the Revit 2011 software. Each assignment will stress the basic skills that a student must have to gain proficiency in the use of the drawing software. The assignment will enhance the student ability to produce a clear and accurate drawing.

A minimum of two exams will be equally space during the semester.

The final exam will have two parts. Part A will have 20 true or false questions and 20 fill in the blanks covering part two of the text book.  Part B will require the student to produce drawing.

**LATE ASSIGNMENT POLICY:** Students are encouraged to turn in assignments in on time if at all possible. This allows the instructor to grade the work, return it to the student and the student use the feedback as a learning tool.

**MAKE – UP TEST/PROJECT POLICY:**  NO make-up test is given for scale test, midterm and the final examination.

**INSTRUCTIONAL METHODS:** DFTG 2331 is the first part of the knowledge base that leads to the mastery of the Revit Software.

As an Instructor, I will lecture on the each assignment and demonstrate the use of drawing commands for completion assignments. Work assignments will provide the student an opportunity to master the drawing software.

In order to become proficient in the use of the drafting software, a student must read the text book and complete the assignments in a timely manner.



**AMERICANS WITH DISABLILITIES ACT (ADA) COMPLIANCE:**

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, ect) who needs to arrange reasonable accommodations must contact the Disability Support

Services Office (DSSO) of their respective college at the beginning of each semester. Faculty is authorized to provide only the accommodation(s) requested by the DSSO. For information and services at HCC Southwest, contact: **Dr. Becky Hauri, ADA** .

**CLASS ATTENDANCE:** You are expected to attend all lecture classes and labs. You are also responsible for all materials covered in either lecture or lab. In the case of your absence, you must contact the instructor to obtain make-up assignments or arrange make-up testing, either of which can be distributed at the instructor's discretion. Class attendance is checked daily.

The instructor has the authority to drop you from the class for excessive absences, that is, you may be dropped from a course after accumulating absences in excess of 12.5 percent of the total hours of instruction (lecture and lab).  For example: .

A 6-credit hour lecture/lab class per week - 2 absences (12 hrs.) is 12.5% of the class.

Administrative drops are at the discretion of the instructor.  It is your responsibility to drop a course, should you choose not to complete it.  Failure to withdraw officially will result in you receiving a grade off" in the course.

> **Note**:  Although it is your responsibility to officially withdraw from a course, it is always a good idea to discuss any attendance problems with your instructor first.  Class attendance is very important, but your instructor may be able to help you catch up.  If you become ill or know you are going to miss class for some reason, tell your instructor as soon as possible.

Departments and programs governed by accreditation or certification standards may have different attendance policies.

**SCHOLASTIC DISHONESTY:** Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. College System Officials may initiate penalties and/or disciplinary proceedings against a student accused of scholastic dishonesty. "Scholastic dishonesty" includes, but is not limited to, cheating on a test, plagiarism, and collusion.

"**Cheating**" on a test includes:

- Copying from another student's test paper;
- Using materials during a test that are not authorized by the person giving the test;
- Collaborating with another student during a test without authority;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of an un-administered test;
- Bribing another person to obtain a test that is to be administered.

**"Plagiarism"** means the misuse of another's work and the deliberate incorporation of that work into work you offer for credit. "Collusion" means the unauthorized collaboration with another person in preparing work offered for credit.

Determination of scholastic dishonesty will be at the discretion of the instructor.

Reference the following web link for additional information: http://www.hccs.cc.tx.us/handbookiStudentP.htm

# Course Calendar – Advanced Cad Architectural

**WEEK 1**

Introduction to Autodesk Revit Architecture
Autodesk Revit Architecture as a Building Information Modeler
Basic Concepts and Principles
Starting Autodesk Revit Architecture
User Interface
Dialog Boxes
Multiple Document Environment
Interoperability of Autodsk Revit Architecture
Buikding Information Modeling and Autodesk Revit Architecture
Autodesk Revit Architecture Help

Starting a new project
Setting Units
Snap Settings
Saving a Project
Configuring Global Settings
Closing a Project
Exiting a Project
Opening an Existing Project
Model Display Tools

**WEEK 2**

Creating a Building Project
Sketching Interior Walls
Using Doors in a Building Model
Using Windows in a Building Model
Doors and Windows as Wall Openings

**WEEK 3**

Creating a Selection Set
Moving and Copying Elements
Trimming and Extending Elements
Cutting and Pasting Elements

Rotating Elements
Mirroring Elements
Creating an Offset
Creating an Array of Elements
Matching Elements
Aligning Elements and Working with Constraints
Deleting Elements
Splitting Walls
Grouping Elements
Creating Similar Elements
Pinning Elements
Scaling Elements
Using Diagnostic Tolls

**WEEK 4**

Working with Levels
Hiding Elements in a View
Working with Grids
Reference Planes
Work Planes
Working With Project Views
Creating Floors
Creating Roofs
Shape Editing Tools for Structural Floors, Floors, and Roofs
Creating Ceilings
Rooms
Joining Walls with Other Elements

**WEEK 5**

Using Components in a Project
Using Stairs in a Project
Using Railings in a Building Model
Creating Ramps
Using Curtain System in a Project
Copying Elements from One Level to Another
Working with Site Features
Adding Property Lines
Adding Site Components
Adding Parking Components
Adding Labels to Contours

**WEEK 6**

Understanding Massing Concepts
Creating the Massing Geometry
Creating Building Elements from the Massing Geometry Using
Building Maker Tools
Creating Families
Adding Tags
Room Tags
Keynotes
Adding Symbols
Adding Dimensions
Adding Spot Dimensions


**WEEK 7**

Project Detailing in Autodesk Revit Architecture
Creating Detail Using the Building Model
Crop Regions
Creating Drafted Details
Adding text notes
Revision Clouds
Using Schedules in a Project
Creating Drawing Sheets
Duplicate Dependent Views
Printing in Autodesk Revit Architecture
Printing Drawing Sheets and Project Views


**WEEK 8**

3-Dimensional Views
Rendering in Revit Architecture
Creating a Walkthrough


**WEEK 9**

Creating Structural Components
Using Area Analysis Tools
Color Schemes
Masking Regions
Using Project Phasing Concepts

Linking Building Model and Sharing Coordinates

## WEEK 10

Work sharing Concepts
Purging Unused Element Families
Transferring Project Standards
Organizing the Project Browser
Generating Shadows
Revit Architecture Solar Studies
Revit Architecture Interoperability

## WEEK 11

Compound walls. Wall sweeps, Custom Walls
Working with CAD, SketchUP, 3D MAX (import and export)

## WEEK 12

Revit and Green Architecture

## WEEK 13

The final project information will be given
Collect Data
Start working on a final project. Stage 1.

## WEEK 14

Developing a Final Project .

## WEEK 15

## FINAL EXAM

Final Exam will be limited to 3 hours per the College requirements.