COURSE OUTLINE

Architecture 252 Introduction to Revit MEP & Structure

I. <u>Catalog Statement</u>

Architecture 252 teaches the features of the latest versions of the Autodesk Revit MEP (Mechanical, Electrical and Piping) and the Revit Structure software programs. Topics include design and documentation of mechanical, electrical, and piping systems for commercial and residential structures; the use of structural components; the development of structural plans and details.

Units -3.0Lecture Hours-2.0Total Laboratory Hours -4.0(Faculty Laboratory Hours -4.0 + Student Laboratory Hours -0.0 = 4.0 Total Laboratory Hours)

Prerequisite: Architecture 250 or equivalent.

II. <u>Course Entry Expectations</u>

Skills Level Ranges: Reading 5; Writing 5; Listening/Speaking 5; Math 3.

Prior to enrolling in the course, the student should:

- 1. complete a series of architectural drafting problems using the Revit software;
- 2. explain the relationship between floor plans, elevations, and section views within a parametric environment;
- 3. create three-dimensional models and construction documents for a residential design project;
- 4. create three-dimensional models and construction documents for a commercial design project;
- 5. create photo-realistic renderings of architectural projects.

III. Course Exit Standards

Upon successful completion of the required coursework, the student will be able to:

- 1. design and document mechanical systems for a commercial or residential structure;
- 2. design and document electrical systems for a commercial or residential structure;
- 3. design and document piping systems for a commercial or residential structure;
- 4. create structural components for a commercial or residential structure;
- 5. analyze the structure for structural integrity.

IV. Course Content

Total Contact Hours = 96

Α.	Introduction to Computers for CAD (Computer Aided Design)/ BIM (Building Information Modeling) User	6 hours
	1 Computer basic: terms and functions	
	2 Overview of the windows user interface	
	3. File management introduction	
	4. File management exercises	
В.	Getting Started with Revit Architecture 2010	8 hours
	1. Overview of the Revit user interface	0 110 010
	2. Open, save and close an existing project	
	3. Creating a new project	
	4. Viewing drawings	
	5. Using Revit's help system	
C.	Overview of Linework and Modify Tools	6 hours
	1. Lines and shapes	
	2. Snaps	
	3. Modify tools	
	4. Annotations	
D.	Drawing 2D Architectural Content	5 hours
	1. Sketching rectilinear objects	
	2. Sketching objects with curves	
E.	Commercial Building Floor Plans	7 hours
	1. Project overview	
	2. Exterior walls	
	3. Interior walls	
	4. Doors, windows and curtain walls	
	5. Stairs	
F.	Roof, Floors and Ceilings	6 hours
	1. Use of the roof tool	
	2. Floor systems	
	3. Ceiling systems	
G.	Structural Systems	8 hours
	1. Introduction to Revit Structure	
	2. Creating views and loading content	

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	 Grids, columns and beams Floors and bar joist layout Foundations and footings 	
	6. Structural annotation and tags	
H.	Elevations, Sections and Details	8 hours
	1. Exterior elevations	
	2. Interior elevations	
	3. Building sections	
	4. Wall sections	
	5. Linking AutoCAD details	
I.	Interior Design	7 hours
	1. Toilet room layouts	
	2. Cabinets	
	3. Furniture	
	4. Column furring, guardrails and interior curtain wall	
J.	Schedules	6 hours
	1. Rooms, room tags & door tags	
	2. Generate a door schedule	
	3. Generate a room finish schedule	
	4. Generate a graphical column schedule	
К.	Mechanical Systems	8 hours
	1. Introduction to Revit MEP – mechanical and piping	
	2. Creating views and loading content	
	3. Placing air terminals and the AHU (air handling unit)	
	4. VAV (variable air volume) boxes, MEP systems & ductwork	
	5. Plumbing layout	
L.	Electrical System	8 hours
	1 Introduction to Revit MEP – electrical	
	2 Creating views and loading content	
	3 Panel board, power devices and MEP systems	
	4 Light fixture and light switch layout	
	5 Systems layout	
M.	Site and Renderings	7 hours
	1 Site tools	
	2 Creating and exterior renderings	
	3 Renderings and isometric rendering	
	4 Creating and interior rendering	
	5 Adding people to rendering	
N.	Construction Documents Set	6 hours
	1 Setting up a sheet	
	2 Sheet index	
	3 Printing a set of drawings	

V. <u>Methods of Presentation</u>

The following instructional methodologies may be used in the course:

- a. lecture;
- b. multimedia;
- c. guest speakers;
- d. individual and group projects;
- e. field trips.

VI. Assignments and Methods of Evaluation

- 1. Midterm examination.
- 2. Individual projects. (i.e. Completion of book tutorials.)
- 3. Final presentation. (i.e. Creation of a portfolio of mechanical, electrical and piping plans. Portfolio will be critiqued by instructor and class.)
- **4.** Final examination.

VII. <u>Textbooks</u>

Stine, S., <u>Design Integration Using Autodesk Revit 2011</u>, Current edition Mission, KS: Schroff Development Corporation, 2009 10th Grade Textbook Reading Level ISBN: 978-1-58503-582-3.

VIII. <u>Student Learning Outcomes</u>

- 1. Students will design and document mechanical systems for a commercial or residential structure.
- 2. Students will design and document electrical systems for a commercial or residential structure.
- 3. Students will design and document piping systems for a commercial or residential structure.
- 4. Students will create structural components for a commercial or residential structure.