VALENCIA COLLEGE

Department of Building Construction Technology
Engineering, Computer Programming & Technology Div.
West Campus Building 9, Room 140 (407) 582-1902/1903
http://www.valenciacollege.edu/west/engineering/

CRN 22114 **SESSION: Spring 2021**

Course Syllabus *for* TAR2033C Architectural Design

Course Description: (*From the Valencia Catalog*) **TAR2033C:** Prerequisite: TAR 1120C or Department Approval Introduction to architectural planning and design. Use of project team concept. Student projects include shopping centers, industrial complexes, production facilities, apartment complexes, high-rise buildings, etc. Students prepare necessary drawings to construct project, including site plan, building plans, sections, etc. Students also build a model of their project. (Special Fee: $46.00)

Class Meetings: **Real-Time Virtual/Hybrid - Wednesday evenings 7:00-8:30, 15 weeks.**

Text: RECOMMENDED: **Wakita & Linde**, ***The Professional Practice of Architectural Working Drawings*** (Wiley)
5th Edition (2017) preferred; students may use 4th Edition (2011) but content/page numbers will not match assignments and class discussions.

Materials: **Software:** Students will be required to use the latest version of REVIT and may download this software for free for use on their own computers from AutoDesk. If students do not have access to a computer capable of running REVIT some CADD capable laptops are available as loaners; please contact the instructor to request one.
Manual sketching is used for some exercises, and students are expected to hand-draw some assignments. Students will also need access to a camera or smart phone to submit digital photos.

Instructor Information:

Name: **Andrew Ray**
Phone: **(321) 945-5995**
Email: **ARay@valenciacollege.edu**
Office Hours: Virtual office hours invitations will be sent. Appointments may also be made at mutually convenient times.

NOTE: Classroom Policies are available at frontdoor.valenciacollege.edu/?aray

Revisions to this syllabus may be made by the instructor during the semester and will be posted on the CANVAS portal for this class.

Student Performance Assessment:

Course Grade:
- 35% - **Design Project** (team effort)
- 25% - **Deprogramming, Architect Report** & **Design Exercises**
- 25% - **REVIT Assignment(s) & Photography Project**
- 15% - **Text Material Exam (Midterm)**
- 100% - **TOTAL**

Grading Scale:
90 - 100 % = A
80 – 89.9 % = B
70 – 79.9 % = C
60 – 69.9 % = D
0 – 59.9 % = F

1. **Introduction:** Students will submit a brief introduction in a discussion post during the first week of class;

2. **Architect Report:** From the OBJ Lists of largest Central Florida architectural/engineering firms or other online resource, write a report on one local or national architecture firm; include the year founded, principal architects, number of employees, areas of specialization, most notable projects, and photos (from internet) of their most notable buildings.

3. **REVIT Family Assignment:** Each student will choose an existing design from a list provided by Instructor, verify the dimensions, and develop a REVIT Family (RFA) model of the object.

2. **Photography Project:** During this course, each student will need access to a camera (or smart phone) and must provide 24 digital pictures, following the project format and content supplied by the Instructor, uploaded to CANVAS.

3. **Deprogramming Exercise:** students will choose a completed commercial building of modest size and submit a brief illustrated report with copies of the floor plan describing the building as it exists, and illustrated to identify the significant features of the building, including structure, circulation, function, and/or other factors unique to the project.

4. **Design Exercises:** A variety of short-duration exercises will be assigned during the course, usually to be completed in class or by the following class period. These projects are intended to develop the design skills of the student and provide immediate feedback from the Instructor. Students missing an exercise must complete a make-up exercise, usually of increased difficulty, by the end of the class period one week after their return to class. Topics include Energy Conservation, Parking, and Tiny House/Container Housing.

5. **Design Project:** Students will be divided into teams. Each team will select a commercial building project to design and develop, from the concept phase to the completion phase. The project will be subject to guidelines set forth in various hand-outs, lectures, photos, movies and other data that may be used to supplement the text. **Final presentation** of the projects will be made to experts in design and construction; each team member will be responsible for presenting a portion of the project.

   A. The project will involve a **Feasibility study**; **site location** and **building schematics** must be "sold" to the instructor before proceeding. After approval, the team will develop their project.

   B. The **project package** will consist of the following:
      1. Abbreviated **Design Development** sheets based on REVIT model file, including **color presentation rendering**.
      2. Approximate **estimate** of total construction cost, including breakdown estimate of several items used in the building.
      3. Complete **index of materials** used, with minimum (2) **abbreviated specification** sections.
      4. A small-scale **study model** of the building(s) and **wall section model** (built over wall section at ¾" = 1' scale).
      9. **Final report**, including percentage of participation by all team members.

   C. **Three Major Milestones** have been established in the development of your project. They are as follows:
      Phase 1: **Feasibility study, site selection** and **schematic design sketches.**
      Phase 2: **Preliminary drawings** and **specifications**.
      Phase 3: **Completed project package,** including **drawings, documents, model(s)** and **rendering** (optional)

TAR2033C SPRING 2021 - TENTATIVE SCHEDULE

Date	*Discussion Topics & Assignments*	*Read:*
1/14	Introductions; **Ch.1:** Office Practices; ***contracts activity***, Review REVIT families **Ch.2:** Drafting Standards; **Ch.3:** BIM/Revit/SketchUp; ***Homework: Begin Deprogramming Assignment, upload Intro***	**1, 2, 3, 4**
1/21	**Ch.4:** Sustainable/Green Arch; ***Energy conservation activity*** Work on **REVIT family project assignment**	**5, 6, 7**
1/28	**Ch.5:** Construction Materials & Methods; Review wall sections; ADA & Commercial *Homework:* ***photograph building(s) for Photo Assignment***	**14+ 15**
2/3	Design Phases; **Ch.6:** Initial Prep for CD's; **Ch.7:** Site & Grading Plan; ADA parking **17.** Case study: Two-story, wood-framed residence ***REVIT Family due:*** Review previous project drawings & models; ***assign teams*** Homework: ***Finish Deprogramming Report***	**8, 9 & 16**
2/10	**Deprogramming Report Due** **8.** Floor Plan; **9.** Foundation & Roof Plans, Framing Systems; Review team assignments; ***develop scope of projects & program*** **18.** Case study: Steel and masonry 6-screen theater; ***bubble diagram exercise*** ***Homework: develop list of programmatic criteria; Parking layout exercise.***	**10, 11 & 17**
2/17	**10.** Building Sections; **11.** Exterior & Interior Elevations; ***container design due*** ***Design Assignment: each team member creates schematic design for project***	**12, 13 & 18**
2/24	**Schematic Designs Due;** groups select schematic design for project **12.** Schedules: Door, Window, & Finishes; **13.** Architectural Details and Vertical Links **Showcase:** Research Library & prior REVIT projects; ***Review for Midterm***	**Review**
3/3	**Mid-Term Exam** Review schematic designs and assign project tasks; model building supplies Complete photo assignment	
3/10	**SPRING BREAK – College Closed**	
3/17	**Review exam;** Begin Revit model; ***complete site analysis*** and design; list of materials; choose specs; Review Revit tools	
3/24	**Discuss Final Project presentation format and requirements**	
3/31	**Discuss Cartoon set, wall section models;** model building workshop	
4/7	****Photo Assignment Due**; Advanced Revit features** **Present progress and updated plan for completion**	
4/14	**Review progress** on Revit model, project manual, and photos of scale model	
4/21	**ALL drawings, models, project manual due;** discuss presentation techniques	
4/28	**Final Presentation** to design professionals	

Class Notes:

Introductions: fill out cards, meet each other, introduce to class; on back - phone#; ***what you want to learn***
Capstone course to challenge you, assess your competencies (learning outcomes) = time commitment
Miss one class = 3.5 hours behind (plus homework); plan 4 to 8 hours outside class each week on computer

PART I – Professional Foundations

1. Professional Foundations (Office Practices): diff between A/E/C offices; Sweets & web resources; prof orgs; clients & ***contracts activity; Google Earth*** *(3D buildings) and* ***REVIT review***

2. Standards & Techniques: history of drawing media/reproduction; why standards? National CAD Standard. Metrication; CAD drafting (advantages/disadvantages) value of construction knowledge

3. Human Concerns: ADA + universal design; Intro to **BIM/Revit/Dynamo/SketchUp** and software features.
REVIT family assignment: choose one component from listed projects to design and model

4. Sustainable/Green Arch: What is green? USGBC/LEED/GreenGlobes; shelter/climate control/IAQ issues
Energy conservation activity (explain one characteristic of bldg. 10 & 11 and how LEED points earned)

5. Construction Materials & Methods: Structural systems - 02 Found., 03 Conc., 04 Mason, 05 Steel, 06 Wood
Wall section sequence activity in REVIT
Design Phases: Existing buildings/deprogramming; programmatic requirements; ***bubble diagram exercise***
Discuss various design philosophies;

6. Initial Prep for CD's: codes, planning/management, cartoon set, drawing sequence (UDS), delivery methods
Deprogramming Assignment

PART II – Document Evolution

7. Site Analysis and Grading Plan: Analysis, topo, grading/drainage, circulation, utilities, paving & site improvements. ***Site design exercise*** (from provided Site & handouts); discuss site selection for project

8. Floor Plan: types of plans, common symbols, CAD components & REVIT elements
Design Assignment: each team member creates schematic design for project

9. Foundation & Roof Plans, Framing Systems: foundation types, exterior/interior walls, floor & roof framing
Exercise: Sketch structural system for project

10. Building Sections: definition, types. ***Exercise: cut section in REVIT and render***

11. Exterior & Interior Elevations: material designations, height dimensioning; using BIM

12. Schedules: Door, Window, & Finishes – typical categories, how to complete schedules in REVIT

13. Architectural Details and Vertical Links – how to create ramps, stairs, and elevators in REVIT

PART III – Tenant Improvement, Historic Preservation, BIM

14. Additions/Alterations, Historic Preservation/Restoration, Tenant Improvements

15. B.I.M. with REVIT

CASE STUDIES with Construction Documents:

(16. One-story, conventional wood-framed residence)

17. Two-story, wood-framed residence with basement – review design and documentation evolution

18. Steel and masonry 6-screen theater – review site plan/parking, schematic to design development, structure