San Bernardino Valley College
Curriculum Approved: January 24, 2005

I. COURSE INFORMATION:

A. Division: Science and Math
Department: Architecture
Course ID: ARCH 220
Course Title: Architectural Computer Aided Drafting I
Units: 4
Lecture Hrs: 2
Laboratory Hrs: 6
Prerequisite: ARCH 120
Co requisite: none
Dept. Advisory: none

B. Catalog Description: An introduction to theories and principles of computer aided design/drafting (CAD) using AutoCAD and to its principal applications in the field of architecture by generating, evaluating, modeling drafting and rendering design solutions are explored in this course. *(formerly ARCH 141)*

C. Schedule Description: An introduction to theories and principles of computer aided design/drafting (CAD) using AutoCAD and to its principal applications in the field of architecture by generating, evaluating, modeling, drafting and rendering design solutions.

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: once

III. EXPECTED OUTCOMES:

Upon successful completion of the course, the student should be able to:

A. Formulate and organize a drawing system by CAD file naming management
B. Construct a CAD drawing file
C. Differentiate and utilize common CAD tools for drawing
D. Distinguish the various drawings, retrieve and modify existing CAD files
E. Analyze, organize and produce finished drawings per graphic and industry standards
F. Apply principles of field inventory and measurement techniques, and produce a drawing to represent the new or given site field conditions.

IV. COURSE CONTENT:

A. Create new CAD drawing file
    1. Implement logical computer drawing file naming system
    2. Utilize CAD drawing seed file system
    3. Organize necessary tool palettes menus
    4. Configure CAD file drawing file settings
        a. Scale attributes
        b. Text attributes
        c. Dimension attributes
        d. Level symbology
            i. Color
            ii. Level
            iii. Line style
            iv. Line weight (thickness)

B. CAD drafting
    1. Draw lines, shapes, circles, and arcs to create drawing
    2. Modify and manipulate lines, shapes, circles, arcs as needed to update drawing
    3. Insert, modify and manipulate text
    4. Insert, modify and manipulate dimensions
    5. Attach, manipulate reference CAD files
    6. Create/insert cells (grouped elements)

C. Print/plot finished drawing for presentation/production
    1. Adjust printing/plotting settings
    2. Print/plot drawing and evaluate for presentation quality
D. Class exercises:
    1. Instructor led drafting new border file containing:
        a. Place filled shapes to create a "border" base drawing
        b. Insert text
            i. Name
            ii. Course information
            iii. "Date:"
            iv. "Exercise:"
        c. Create text data fields
            i. Actual date
            ii. Actual exercise number
        d. Print out border and evaluate for presentation quality
    2. Developing CAD skills
        a. Create and name new CAD drawing file
            i. File settings
            ii. Level settings
            iii. Text settings
            iv. Dimension settings
        b. Follow textbook exercise step-by-step as modified by instructor:
            i. Draw lines, shapes, arcs, and circles
            ii. Copy, move, stretch, trim,
            iii. Adjust level symbology
            iv. Insert and modify text
            v. Insert and modify dimensions
        c. Reference in "border" file
            i. Attach
            ii. Clip Boundary
            iii. Move referenced file
            iv. Copy up and insert actual information
                a. Date text data field
                b. Exercise number text data field
        d. Print final drawing
            i. Print settings
            ii. Evaluate print for presentation quality
    3. Campus field exercise
        a. Measure and note actual site field conditions
        b. CAD draft field conditions drawing
        c. Print drawing and evaluate presentation quality
    4. Final project
        a. Information given for residential floor plan
            i. Walls
            ii. Doors
            iii. Windows
            iv. Plumbing fixtures
            v. Casework
            vi. Residential appliances
            vii. Minimal residential furniture
        b. CAD draft residential floor plan
        c. Print final drawing
    5. Final written examination

V. METHODS OF INSTRUCTION: (Please check all that apply and add any additional not listed.)

x Lecture
x Class and/or small group discussion
Critical evaluation of texts, newspapers, journal articles and other printed research
Critical evaluation of films, videotapes, audiotapes or other media forms
x Classroom demonstrations
x Field trips
x Guest speakers
x Individual consultation
x Computer presentations
x Group projects and individual projects

VI. TYPICAL OUT-OF-CLASS ASSIGNMENTS:

A. Reading Assignment. Reading assignments are required and may include (but are not limited to) the following: Read chapter on, "Working with Groups" and evaluate the best practices for utilizing groups
B. Writing Assignment: Writing assignments are required and may include (but are not limited to) the following: You are adding a porch to a friend's home. Consider the utilitarian function and the aesthetic appeal of this project and write your analysis and steps you would take to design the porch.
C. Drafting Assignment. Computer Aided Drafting assignments are required and may include (but are not limited to) the following: Using the CAD program, prepare a correctly proportioned draft of a one-story house.
D. Critical Thinking Assignment. Critical thinking assignments are required and may include (but are not limited to) the following: Following an interview with your client and measurements of the alloted space, design a functional unit that addresses the needs of your client. Draft solution(s) utilizing CAD, printing, and presenting solutions to client.

VII. EVALUATION:

A student's grade will be based on multiple measures of performance and will reflect the objectives explained above. A final grade of "C" or better should indicate that the student has the ability to successfully apply the principles and techniques taught in this course. These evaluation methods may include, but are not limited to, the following (Please check all that apply, and add additional ones not listed):

x Portfolios
x Projects
_____ Written papers or reports
_____ Presentations (oral and visual)
_____ Work performance (internships or field work)
x Lab work
x Comprehensive examinations (cumulative finals or certifications)
_____ Peer evaluation
x Self evaluation
_____ Classroom participation
x Homework exercises
x Final Exam, written and graphic
x Field Site Measure
_____ Other:

VIII. TYPICAL TEXTS:

A. Mastering AutoCAD-LT 2005, Omura, George, Sybex, 2005.
B. Inside AutoCAD 2005, Harrington, David; New Rites, 2004.
C. AutoCAD 2004 for Architecture, Jeffries, A. and Jones, M., Autodesk Press, 2003

IX. OTHER SUPPLIES REQUIRED OF STUDENTS:

A. 3-1/2 inch, 1.44MB, HD computer diskettes
B. Architectural and engineer scales
C. Library card for Off-Class time printing