San Bernardino Valley College
Curriculum Approved: January 24, 2005

I.   COURSE INFORMATION:
   A. Division: Science and Math
       Department: Architecture
       Course ID: ARCH 221
       Course Title: Architectural Computer Aided Drafting II
       Units: 4
       Lecture Hours: 2
       Laboratory Hours: 6
       Prerequisite: ARCH 220
       Corequisite: None
       Dept. Advisory: None

   B. Catalog and Schedule Description: This course is a continuation of ARCH 220 and coveres the preparation of preliminary studies, construction drawing, detail drawing, and building code applications. This includes complete construction drawings of light wood frame and heavy timber construction and utilizes computer aided design drafting (CAD). *(formerly ARCH 230)*

II.   NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III.   EXPECTED OUTCOMES FOR STUDENTS:
   Upon successful completion of the course, the student should be able to:
   A. Organize architectural drawings by industry accepted numbering systems and CAD file naming management
   B. Recognize building related codes (zoning, fire, health and safety, plumbing etc.) and identify their impact on architectural documentation
   C. Construct CAD drawing files
   D. Draw and explain the basic required drawings and how they are constructed and organized with CAD
   E. Identify and utilize common CAD tools for drawing
   F. Retrieve and modify existing CAD files
   G. Organize and present finished architectural drawings per industry established standards

IV.   COURSE CONTENT:
   A. Create new CAD residential and commercial drawing files
         1. Implement logical computer drawing file-naming system
         2. Utilize CAD drawing seed file system
         3. Organize necessary tool palette menus
         4. Configure CAD file drawing file settings
                a. Scale attributes
                b. Text attributes
                c. Dimension attributes
                d. Level symbology
                      1. Color
                      2. Level
                      3. Line style
                      4. 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. Use CAD to create wood frame and timber design representations
         1. Create common border file
                a. Client's information

      b. Project information
      c. Architect/drafter's information
      d. Professional stamp location
      e. Revision section
      f. Sheet title, number and sequence
      g. Drawn by, Checked by, Designed by
      h. Date drawn

2. Title sheet
    a. General notes and project information
    b. Symbol legend
    c. Abbreviation legend
    d. Vicinity map
    e. Sheet index

3. Site/plot plan
    a. Property lines
    b. Legal description
    c. Setbacks based upon code requirements
    d. Structure(s) location
    e. Paving and landscape location
    f. Pertinent text and notations
    g. Pertinent dimensions
    h. Related site plan notes
    i. Scale and north arrow
    j. Utilities
        1. Electric
        2. Water
        3. Gas
        4. Sewer
        5. Telephone

4. Foundation plan and related details
    a. Structure footprint
    b. Bearing footings located
    c. Shear wall information located
    d. Slab/Floor framing identified
    e. Posts located and identified (Heavy Timber)
    f. Related details
    g. Related foundation notes
    h. Pertinent text
    i. Pertinent dimensions
    j. Finish floor elevation, datum mark
    k. Scale and north arrow
    l. Section(s) indicated and identified

5. Floor plan(s)
    a. Exterior and interior walls located
    b. Doors and windows
        1. Located
        2. Identified
        3. Header call-out
    c. Plumbing fixtures located
        1. Toilet(s)
        2. Lavatory(s) and sink(s)
        3. Exterior hose bibbs
    d. Casework
    e. Electrical information
        1. Receptacles
        2. Switches

              3. Light fixtures
- f. Mechanical information
    1. Supply, return and exhaust air grilles
    2. Unit(s) location(s)
    3. Hot water heater(s)
- g. Pertinent text
- h. Pertinent dimensions
- i. Related floor plan notes
- j. Finish floor(s) elevation(s)
- k. Scale and north arrow
- l. Section(s) indicated and identified

6. Roof/roof framing plan
    - a. Building perimeter identified and noted
    - b. Roof slope direction indicated
    - c. Roof framing members
        1. Specified sizes
        2. Span directions
        3. Ridge, hip and valley beams identified
    - d. Roof assembly
    - e. Pertinent text
    - f. Pertinent dimensions
    - g. Related roof/roof framing plan notes
    - h. Scale and north arrow

7. Exterior Elevations
    - a. All exterior pertinent elevations
    - b. Pertinent elevations identified
    - c. Finish materials identified
    - d. Pertinent text
    - e. Pertinent dimensions
    - f. Related exterior elevations notes
    - g. Scale

8. Building and wall sections
    - a. Assemblies drawn accurately to scale
    - b. Material graphically shown
    - c. Individual assembly members identified
    - d. Pertinent text
    - e. Pertinent dimensions
    - f. Related section notes
    - g. Related details

9. Interior elevations
    - a. Residential kitchen casework
    - b. Heavy timber
        1. Casework
        2. Special assembly(s)
    - c. Finish materials identified
    - d. Electrical devices identified and located
    - e. Door(s) and window(s) shown
    - f. Store-Front assembly identified and dimensioned
    - g. Pertinent text
    - h. Pertinent dimensions
    - i. Scale

10. Door, window and room finish schedules
    - a. Pertinent information based on current industry standards
        1. Door and frame sizes, configuration, type, construction, glazing, finishes, rating, hardware,related details, special remarks

      2. Window and frame sizes, configuration, type, construction, glazing, finishes, rating, hardware, related details, special remarks

       3. Room identified; floor, base, wall ceiling finish materials, ceiling height, special remarks

   b. Matrix format

   c. Pertinent text

   d. Pertinent dimensions

   e. Related notes

11. Details

   a. Door and window details

      1. Header

      2. Jamb

      3. Sill

   b. Structural assemblies and connections

   c. Special assemblies

11. Print/plot finished drawing for presentation/production

   a. Adjust printing/plotting settings for scale

   b. Print/plot drawing and evaluate for presentation quality

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

X   Lecture

X   Class and/or small group discussion

X   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   Other: Laboratory work

      Other:

      Other:

VI. TYPICAL OUT-OF-CLASS ASSIGNMENTS:

A. Reading Assignment. Reading assignments are required and may include (but are not limited to) the following: Read the chapter on kitchens and bathrooms and write a summary of the main considerations when plotting kitchens or bathrooms.

B. Writing Assignment. Writing assignments are required and may include (but are not limited to) the following: Write a summary of the steps required to complete the previous assignment.

C. Critical Thinking Assignment. Critical thinking assignments are required and may include (but are not limited to) the following: Analyze the methods used to complete the previous assignment. Determine how the current assignment will require modifications to the process used when developing the previous assignment. Write a short paper about these differences before the next lab period.

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

X___ Written papers or reports
X___ Presentations (oral and visual)
_____ Work performance (internships or field work)
X___ Lab work
X___ Comprehensive examinations (cumulative finals or certifications)
X___ Peer evaluation
X___ Self evaluation
X___ Classroom participation
X___ Homework
_____ Other:
_____ Other:
_____ Other:

VIII.   TYPICAL TEXTS:
   A. Mastering AutoCAD-LT 2005, Omura, George; Sybex, 2005.
   B. AutoCAD 2004 Bible, Finkelstein, Ellen; Wiley, 2004.
   C. AutoCAD-LT 2005 for Dummies , Middlebrook, Mark; Wiley, 2005.
   D. 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