ARC 114
ARCHITECTURAL CAD

COURSE DESCRIPTION:

Prerequisites:  None
Corequisites:  None

This course introduces basic architectural CAD techniques. Topics include basic commands and system hardware and software. Upon completion, students should be able to prepare and plot architectural drawings to scale within accepted architectural standards. Course Hours per Week: Class, 1. Lab, 3. Semester Hours Credit, 2.

LEARNING OUTCOMES:

A student who successfully completes this course should be able to:

a. Use CAD drafting equipment, and CAD reproduction techniques
b. Apply CAD drafting skills to produce simple drawings for a residential design
c. Use CAD software at a basic to intermediate level.
d. Use basic CAD knowledge gained toward advanced CAD courses.
e. Use editing commands and Grip editing as production CAD drafting shortcuts

OUTLINE OF INSTRUCTION:

I. Concept of CAD
   A. Opening drawings & starting New drawings
   B. Main Menu Organization
   C. Naming & Saving drawings
   D. Prototype Vs. Seed drawings
   E. Screen Organization & Keyboard Entry
   F. Function keys
   G. Erase, OOPS

II. Setup -- Calculating and setting Units, Limits, Grid, and Tool Bars
   A. Points -- Absolute, Relative, Polar Coordinates
   B. Points -- Snap, Setvar & Defaults
   C. Lines - Line, Ortho, Ray, Xline
   D. Screen refresh - Redraw, Regen, Blipmode
   E. Screen views - Zoom, Pan
   F. Object snap-- Osnap, Aperture
   G. Undo -- Undo
III. 2D figures
A. Line, Circles and Arcs
B. Polygon, Ellipse

IV. Editing
A. Move, Copy, Mirror, Offset
B. Fillet, Chamfer
C. Rotate, Scale, Stretch
D. Editing with GRIPS

V. Layers
A. Layers
B. Linetypes
C. Ltscale

VI. Further editing
A. Ellipse
B. Break, Trim
C. Change, Chprop
D. Array
E. Hatch, Bhatch

VII. Text
A. Text, Dtext, Qtext
B. Style & text fonts
C. Text -- Justification
D. Text -- Special characters
E. Text -- Ddedit to edit text
F. Calculating text heights

VIII. Blocks & cells
A. Block, Wblock
B. Insert, Minsert
C. Explode, Purge
D. Redefinition of blocks

IX. Polylines
A. Pline
B. Pedit

X. Inquiry
A. ID
B. List, Area
C. List, Status
XI. Dimensions
   A. DIM Vs. DIM1
   B. Dim variables
   C. Dimension Styles and Features

XII. Plotting
   A. Plot configuration
   B. Paper size and orientation
   C. Scale rotation and origin
   D. Plot preview

XIII. Object linking & embedding
   A. Attaching spreadsheets to a CAD drawing
   B. Cutting and pasting from drawing to drawing
   C. Exporting CAD data to spreadsheet programs (cost estimating, BOM)

XIV. Paper space & model space
   A. Scale conversion factors
   B. Setting Tilemode to 1 or 0
   C. Using MVSETUP
   D. Using INSERT to insert drawings and detail sheets
   E. Using XREF to reference drawings as detail sheets

XV. Attributes
   A. Introduction to using attributes with a title block
   B. Section and detail keys

XVI. Miscellaneous
   A. Using calculator in a CAD drawing
   B. Using Spell checker
   C. Creating prototype drawings