

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