

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, 6. Semester Hours Credit, 2.

LEARNING OUTCOMES:

Upon completing requirements for this course, the student will be able to:

1. Use CAD drafting equipment and reproduction techniques.
2. Apply CAD drafting skills to produce simple drawings for a residential design.
3. Use CAD software at a basic to intermediate level.
4. Use basic CAD knowledge gained toward advanced CAD course.
5. Use editing commands and grip editing as CAD drafting production shortcuts.

OUTLINE OF INSTRUCTION:

- I. Concept of CAD
 - A. Opening drawings and starting new drawings.
 - B. Main menu organization.
 - C. Naming and saving drawings.
 - D. Screen organization and keyboard entry.
 - E. Function keys.
- II. Setup - Calculating and setting UNITS, LIMITS, GRID, and TOOL BARS
 - A. Points – Absolute, Relative, and Polar coordinates.
 - B. Points – Snap.
 - C. Lines – Line, Ortho, Ray, and Poly.
 - D. Screen Views – Zoom, Pan, and Navigation Wheel.
 - E. Object Snap – Osnap.
 - F. Undo – Undo.
- III. 2D Figures
 - A. Lines, Circles, and Arcs.
 - B. Polygon and Ellipse.
- IV. Editing
 - A. Move, Copy, Mirror, and Offset.
 - B. Fillet and Chamfer.

- C. Rotate, Scale, and Stretch.
 - D. Grips.
- V. Layers
- A. Creating and managing new layers.
 - B. Linetype.
 - C. Linetype Scale.
 - D. Freeze/Thaw.
- VI. Advanced Editing
- A. Ellipse.
 - B. Trim and Extend.
 - C. Array.
 - D. Hatch.
 - E. Match.
- VII. Text
- A. Multiline and Single line text.
 - B. Style and Text Fonts.
 - C. Justification.
 - D. Special Characters.
 - E. Text edit.
- VIII. Blocks
- A. Block characteristics.
 - B. Block benefits.
 - C. Insert.
 - D. Redefinition of blocks.
 - E. External References.
- IX. Polylines
- A. Pline.
 - B. Pedit.
 - C. Width and Halfwidth
- X. Inquiry.
- A. List – Area.
 - B. List – Status.
- XI. Dimensions
- A. Dimension Styles.
 - B. Dimension Variables.
- XII. Viewports
- A. Single.

- B. Multiple.
 - C. Scaling viewports.
- XIII. Plotting
- A. Plot configurations.
 - B. Paper size and orientation.
 - C. Plot to scale.
- XIV. Object Linking
- A. Creating Tables.
 - B. Attaching tables to drawings.
 - C. Formatting tables.
- XV. Attributes
- A. Using attributes with a title block.
 - B. Section and detail keys.

REQUIRED TEXTBOOK AND MATERIAL:

The textbook and other instructional material will be determined by the instructor.