SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: MECH 170   Department: Mechanical Eng. Technology

Course Title: Fundamentals of AutoCAD   Semester: Fall   Year: 2005

Course Objective	Competencies
1. Operate hardware elements of a CAD system	• Identify input, output and storage devices: monitor, keyboard, mouse, CPU, printer, plotter, zip or USB storage media
2. Use Windows operating system to manage AutoCAD files	• Use file management software to store and manage files: create directories, copy, delete, move, sort and find files. • Understand file names, directory paths.
3. Manage AutoCAD software	• Start AutoCAD from Windows icon or Start menu. • Identify and customize elements in the drawing editor: toolbars, menus, command line, cursor, screen display preferences. • Exit AutoCAD.
4. Create drawings in AutoCAD	• Differentiate between starting new drawings and opening existing drawings. • Understand and change default drawing settings: units, paper size, Cartesian coordinate system, grid display, UCS icon. • Save a drawing. • Save a drawing with a different name and directory location. • Use automatic save command.

5. Create drawing templates	• Differentiate between paper space and model space. • Create standard drawing templates in paper space: drawing units, paper size, border widths, zone letters and numbers, titleblock. • Create model space viewports. • Edit titleblock attribute information. • Discuss and use zoom with respect to paper space.
6. Control the mouse cursor	• Use Ortho to draw in a horizontal or vertical direction. • Use Snap mode to move in even increments. • Enter point coordinates: absolute, relative rectangular and polar methods. • Ensure drawing accuracy by utilizing single select and running object snaps.
7. Create objects	• Use the Draw toolbar commands: **LINE, CIRCLE, ARC, ELLIPSE, POLYGON, RECTANGLE, PLINE.**
8. Edit drawings	• Use the Modify toolbar commands: **ERASE, MOVE, COPY, OFFSET, TRIM, EXTEND, CHAMFER, FILLET, BREAK, MIRROR, ROTATE, ALIGN, SCALE, STRETCH, ARRAY, PEDIT, EXPLODE.** • Identify and use object selection set methods: **single pick, All, Last, Previous, Window, Window Polygon, Crossing, Crossing Polygon, Fence.** • Reverse last command with **UNDO**. • Use **Grips** to edit a drawing. • Change the template background of an existing drawing: **WBLOCK** objects or views then begin a new drawing with a different template.
9. Check drawing accuracy	• Use **DIST** command to analyze size and location dimensions of objects. • Use **LIST** command to analyze size dimensions and properties of objects. • Calculate the surface area of objects: **AREA** command.
10. Organize drawing information	• Create layers, customize colors and linetypes.

	• Modify layer of drawing entities. • Modify the linetype scale.
11. Manage drawing display	• Magnify view of drawing with **ZOOM**. • Shift drawing display with **PAN** and graphics window scroll bars.
12. Create multiview drawings	• Use construction lines to create views of an object. • Use X Y point filters to construct views of an object.
13. Place text on drawings	• Use the single line, multiline text commands. • Create special text characters: diameter, degree, and plus/minus symbols, underlining. • Revise text and change text properties. • Create new text styles. • Control the display of text: **QTEXT** and **MIRRTEXT**.
14. Set up and use dimension style families.	• Create and name dimension styles. • Discuss the parent/child relationship.
15. Place dimensions on drawings	• Create linear, angular, radial, diameter, ordinate dimensions. • Place multiline specific notes on a drawing. • Edit dimensions using **Grips**.
16. Create section views	• Use the **BHATCH** command to indicate sectioned views. • Select a boundary for sectioning. • Correct boundary errors. • Hatch around text.
17. Create a standard parts library	• Group objects as a block within a drawing: **BLOCK** command. • Save a group of objects as an external block drawing file: **WBLOCK** command. • Attach text attributes to blocks: **DDATTDEF** command. • Insert blocks into a drawing: **DDINSERT** command.

	• Explode a block.
18. Make hard copies of drawings	• Print drawings. • Understand and set plot scale. • Plot drawings.