

Course Syllabus

Computer-Aided Drafting I

Course Description

This course introduces computer-aided drafting (CAD) and examines the hardware that makes up a CAD workstation. It also covers the operating system (Microsoft Windows) that enables the equipment to function as a unit. The course shows how to use AutoCAD to set up drawings and construct lines, circles, arcs, other shapes, geometric constructions, and text. Students will use display and editing techniques as well to obtain information about their drawings and work with drawing files. This course also introduces recommended drafting standards for students to use for properly preparing drawings with AutoCAD.

Objectives

After completing this course, the student will be able to:

- Use the AutoCAD interface and a keyboard, cursor pointing device, and graphics terminal to put drawing information into a computer.
- Describe and use the basic terms, concepts, and techniques of computer-aided drafting.
- Set up drawings, use drawing aids, save drawings, and get help when needed.
- Draw lines, basic shapes, and geometric constructions, and edit drawings.
- Make multiview layouts and plot or print drawings.
- Use display options to increase drawing flexibility.
- Place text on drawings.
- Use the geometry calculator and filters.
- Use basic and advanced AutoCAD editing commands.
- Select and create hatch patterns to draw section views.
- Obtain information about drawings and work with drawing files.
- Use Windows Explorer to arrange folders for files and programs and perform file management, such as copying and deleting.
- Use proper drafting standards and practices.

Course Length

72 term or semester hours (recommended minimum).

Prerequisite

Previous knowledge of computers or computer programming is not required.

Academic Dishonesty

A student who submits the work of another student as her/his own or deliberately fails to properly credit words or ideas borrowed from another source is guilty of plagiarism. A student who uses notes without permission, takes an exam for another student, copies answers from another student's exam, copies drawings in any manner, or engages in any other similar conduct aimed at making false representation with respect to a student's academic performance is guilty of cheating.

Appropriate Use of Electronic Information Resources

Users shall be responsible for messages they transmit through the Internet and shall obey the acceptable use policies of the Internet and any rules of discussion forums in which they participate. Fraudulent, harassing, or obscene messages and/or materials as defined by contemporary court decisions are not to be sent or stored.

Required Text

AutoCAD and its Applications—Basics, Chapters 1–16.

Required Materials

Removable storage media, such as diskettes, Zip disks, or CD-RWs.

Course Outline

Session	Topics and Commands
1	<p>Chapter 1. The AutoCAD software structure, drawing planning, computer procedures, toolbars and pull-down menus, dialog boxes, image tile menus, tablet menus, getting help, keyboard layout and functions, commonly used terms and definitions, and working with disks.</p> <p>Commands: HELP.</p> <p>Resources: Chapter 1 exercises, test, and problems.</p>
2	<p>Chapter 2. Starting and opening a drawing, drawing file names, and sheet sizes and scales. Using the Quick Setup and Advanced Setup startup options. Using an AutoCAD template.</p> <p>Commands: NEW, SAVE, QSAVE, OPEN.</p> <p>Resources: Chapter 2 exercises, test, and problems.</p>

Session	Topics and Commands
3	<p>Chapter 3. Setting up drawing aids in a template, working with grid and snap modes, changing units and limits, line conventions, point entry methods, drawing lines, coordinate display, editing functions.</p> <p>Commands: GRID, SNAP, UNITS, LIMITS, LINE, MULTIPLE, ORTHO, ERASE, REDRAW, OOPS.</p> <p>Resources: Chapter 3 exercises, test, and problems.</p>
4	<p>Chapter 4. Drawing objects on separate layers, creating and managing layers, assigning linetypes and lineweights, changing object properties, using DesignCenter, making a print.</p> <p>Commands: LAYER, PROPERTIES, PLOT.</p> <p>Resources: Chapter 4 exercises, test, and problems.</p>
5	<p>Chapter 5. Drawing circles, arcs, ellipses, polygons, and rectangles. Drawing rectangles with chamfered corners and rounded corners. Using the revision cloud.</p> <p>Commands: CIRCLE, ARC, ELLIPSE, POLYGON, RECTANG, DONUT, REVLOUD.</p> <p>Resources: Chapter 5 exercises, test, and problems.</p>
6	<p>Chapter 6. Geometric constructions and object snap modes. Using temporary tracking and AutoTracking. Dividing objects, drawing points, and using construction lines to assist in drawing multiviews and auxiliary views.</p> <p>Commands: OSNAP, APERTURE, OFFSET, DIVIDE, MEASURE, POINT.</p> <p>Resources: Chapter 6 exercises, test, and problems.</p>
7	<p>Chapter 7. Using the geometry calculator to make mathematical calculations on numeric values and drawing geometry. Adding objects to a drawing using the calculator and object snaps. Using selection set filters to create custom selection sets.</p> <p>Commands: CAL, QSELECT, FILTER.</p> <p>Resources: Chapter 7 exercises, test, and problems.</p>
8	<p>Chapter 8. Placing text on a drawing, drawing scale factors, creating text styles, revising text on the drawing, special characters, checking spelling, and using proper text standards.</p> <p>Commands: TEXT, MTEXT, STYLE, QTEXT, DDEDIT, PROPERTIES.</p> <p>Resources: Chapter 8 exercises, test, and problems.</p>

Session	Topics and Commands
9	<p>Chapter 9. Using transparent commands, realtime zooming and panning, and creating views. The Aerial View window, model space and paper space, 3D display commands, and floating viewports.</p> <p>Commands: REDRAW, ZOOM, PAN, VIEW, VPORTS, MVIEW, 3DORBIT, REGEN, REGENAUTO.</p> <p>Resources: Chapter 9 exercises, test, and problems.</p>
10	<p>Chapter 10. Paper space layouts, page setups, plot styles, plot style tables, plotting and printing, plot configuration files, plotting options, plot scales, batch plot utilities, plotting hints.</p> <p>Commands: MVIEW, LAYOUT, PLOT.</p> <p>Resources: Chapter 10 exercises, test, and problems.</p>
11	<p>Chapter 11. Drawing chamfers and fillets, using basic editing commands, creating arrays, creating object groups.</p> <p>Commands: CHAMFER, FILLET, BREAK, TRIM, MOVE, COPY, MIRROR, SELECT, LENGTHEN, CHANGE, EXTEND, ROTATE, ALIGN, ARRAY, SCALE, STRETCH, GROUP.</p> <p>Resources: Chapter 11 exercises, test, and problems.</p>
12	<p>Chapter 12. Using grips to edit with STRETCH, COPY, MOVE, ROTATE, SCALE, and MIRROR. Using the Properties window, copying objects between drawings, matching properties.</p> <p>Commands: DDGRIPS, CHANGE, MATCHPROP.</p> <p>Resources: Chapter 12 exercises, test, and problems.</p>
13	<p>Chapter 13. Using Windows Explorer. Listing, selecting, and working with AutoCAD files. Copying, moving, renaming, and deleting folders and files, searching for files, formatting disks, drag-and-drop operations, recovering a damaged drawing, temporary files, DXF files, importing and exporting files.</p> <p>Commands: RECOVER, AUDIT.</p> <p>Resources: Chapter 13 exercises, test, and problems.</p>
14	<p>Chapter 14. Drawing polylines, undoing commands, redoing undone operations, drawing multilines, creating multiline styles, sketching with AutoCAD.</p> <p>Commands: PLINE, UNDO, REDO, FILL, MLINE, MLSTYLE, MLEDIT, SKETCH.</p> <p>Resources: Chapter 14 exercises, test, and problems.</p>

Session	Topics and Commands
<p>15</p>	<p>Chapter 15. Drawing and editing polylines and splines, creating a polyline boundary.</p> <p>Commands: PLINE, PEDIT, EXPLODE, SPLINE, SPLINEDIT, BOUNDARY.</p> <p>Resources: Chapter 15 exercises, test, and problems.</p>
<p>16</p>	<p>Chapter 16. Obtaining information about the drawing.</p> <p>Commands: AREA, DIST, ID, LIST, DBLIST, TIME, STATUS.</p> <p>Resources: Chapter 16 exercises, test, and problems.</p>
<p>Final exam</p>	<p>The Computer-Aided Drafting I final exam is provided on this Instructor's CD. It can be accessed by returning to the ICD main menu, selecting the Instructor's Resources option, and then selecting the Final Exams and Answers option on the following menu page.</p>