

# 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 do the following:*

- 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 the geometry calculator and filters.
- Place text on drawings.
- Insert and edit tables.
- Use display options to increase drawing flexibility.
- Use basic and advanced AutoCAD editing commands.
- Obtain information about drawings and work with drawing files.
- 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><b>Commands:</b> HELP.</p> <p><b>Resources:</b> 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 <b>Quick Setup</b> and <b>Advanced Setup</b> startup options. Using an AutoCAD template. Setting up drawing aids in a template, working with grid and snap modes, changing units and limits.</p> <p><b>Commands:</b> NEW, QNEW, SAVEAS, QSAVE, OPEN, GRID, SNAP, UNITS, LIMITS.</p> <p><b>Resources:</b> Chapter 2 exercises, test, and problems.</p>

Session	Topics and Commands
3	<p>Chapter 3. Line conventions, point entry methods, drawing lines, coordinate display, editing functions.</p> <p><b>Commands:</b> LINE, MULTIPLE, ORTHO, ERASE, REDRAW, OOPS.</p> <p><b>Resources:</b> 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 <b>DesignCenter</b>, making a print.</p> <p><b>Commands:</b> LAYER, PROPERTIES, ADCENTER, PLOT.</p> <p><b>Resources:</b> 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><b>Commands:</b> CIRCLE, ARC, ELLIPSE, POLYGON, RECTANG, DONUT, REVLOUD.</p> <p><b>Resources:</b> 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><b>Commands:</b> OSNAP, APERTURE, OFFSET, DIVIDE, MEASURE, POINT, XLINE.</p> <p><b>Resources:</b> 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><b>Commands:</b> CAL, QSELECT, FILTER.</p> <p><b>Resources:</b> 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, inserting fields, checking spelling, and using proper text standards.</p> <p><b>Commands:</b> TEXT, MTEXT, STYLE, QTEXT, DDEDIT, PROPERTIES.</p> <p><b>Resources:</b> Chapter 8 exercises, test, and problems.</p>
9	<p>Chapter 9. Inserting and entering text into tables. Editing table cells and layout. Working with, creating, and formatting table styles.</p> <p><b>Commands:</b> TABLE, TABLESTYLE.</p> <p><b>Resources:</b> Chapter 9 exercises, test, and problems.</p>

Session	Topics and Commands
10	<p>Chapter 10. Using transparent commands, realtime zooming and panning, and creating views. The <b>Aerial View</b> window, model space and paper space, 3D display commands, and floating viewports.</p> <p><b>Commands:</b> REDRAW, REGEN, ZOOM, PAN, VIEW, VPORTS, MVIEW, 3DORBIT, REDRAWALL, REGENAUTO.</p> <p><b>Resources:</b> Chapter 10 exercises, test, and problems.</p>
11	<p>Chapter 11. 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><b>Commands:</b> MVIEW, PAGESETUP, LAYOUT, PLOT.</p> <p><b>Resources:</b> Chapter 11 exercises, test, and problems.</p>
12	<p>Chapter 12. Drawing chamfers and fillets, using basic editing commands, creating arrays, creating object groups.</p> <p><b>Commands:</b> CHAMFER, FILLET, BREAK, CHANGE, EXTEND, TRIM, MOVE, COPY, MIRROR, ROTATE, ALIGN, ARRAY, SCALE, STRETCH, LENGTHEN, SELECT, GROUP.</p> <p><b>Resources:</b> Chapter 12 exercises, test, and problems.</p>
13	<p>Chapter 13. Using grips to edit with <b>STRETCH, COPY, MOVE, ROTATE, SCALE, and MIRROR</b>. Using the <b>Properties</b> window, copying objects between drawings, matching properties.</p> <p><b>Commands:</b> DDGRIPS, CHANGE, MATCHPROP.</p> <p><b>Resources:</b> 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><b>Commands:</b> PLINE, UNDO, REDO, FILL, MLINE, MLSTYLE, MLEDIT, SKETCH.</p> <p><b>Resources:</b> Chapter 14 exercises, test, and problems.</p>
15	<p>Chapter 15. Drawing and editing polylines and splines, creating a polyline boundary.</p> <p><b>Commands:</b> PLINE, PEDIT, EXPLODE, SPLINE, SPLINEDIT, BOUNDARY.</p> <p><b>Resources:</b> Chapter 15 exercises, test, and problems.</p>
16	<p>Chapter 16. Obtaining information about the drawing, displaying information with fields.</p> <p><b>Commands:</b> AREA, LIST, DBLIST, DIST, ID, TIME, STATUS.</p> <p><b>Resources:</b> Chapter 16 exercises, test, and problems.</p>

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Session	Topics and Commands
<b>Final exam</b>	The Computer-Aided Drafting I final exam is provided on this Instructor's CD. It can be accessed by returning to the Instructor's CD main menu, selecting the Instructor's Resources option, and then selecting the Final Exams and Answers option on the following menu page.

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