



ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Workforce Development

COURSE: CAD 1200 Computer Aided Drafting I

Date: Fall 2017

Credit Hours: 3

Prerequisite(s): None

Delivery Method: **Lecture** **2 Contact Hours (1 contact = 1 credit hour)**
 Seminar **0 Contact Hours (1 contact = 1 credit hour)**
 Lab **2 Contact Hours (2-3 contact = 1 credit hour)**
 Clinical **0 Contact Hours (3 contact = 1 credit hour)**
 Online
 Blended

Offered: **Fall** **Spring** **Summer**

IAI Equivalent –**Only for Transfer Courses**-go to <http://www.itransfer.org>:

CATALOG DESCRIPTION:

This course is an introduction to computer-aided drafting (CAD) for use in basic mechanical drafting principles. Students will learn the basics of 2D CAD and it's applications to different industries. Students compare 2D CAD operations to 3D and compare the different types of software used in both. This course will focus on the basics of AutoCAD. Content will include such topics as; setting up drawings, constructing lines, circles, arcs and other shapes. Basics of geometric construction and adding text. Students will use display and editing techniques as well to obtain information about their drawings and work with layers and drawing files. This course examines basic dimensioning and tolerancing concepts. Students will learn to produce pictorial drawings and orthographic layouts. Upon completion a student will know how to read and interpret engineering drawings

GENERAL EDUCATION GOALS ADDRESSED

[See last page for Course Competency/Assessment Methods Matrix.]

Upon completion of the course, the student will be able:

[Choose up to three goals that will be formally assessed in this course.]

- To apply analytical and problem solving skills to personal, social, and professional issues and situations.
- To communicate successfully, both orally and in writing, to a variety of audiences.
- To construct a critical awareness of and appreciate diversity.
- To understand and use technology effectively and to understand its impact on the individual and society.
- To develop interpersonal capacity.
- To recognize what it means to act ethically and responsibly as an individual and as a member of society.
- To recognize what it means to develop and maintain a healthy lifestyle in terms of mind, body, and spirit.
- To connect learning to life.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals. See last page for more information.]

Upon completion of the course, the student will be able to:

1. Demonstrate understanding of basic drafting communication.
 - a. Describe and use the basic terms, concepts, and techniques of computer-aided drafting
 - b. Identify and use CAD annotation and presentation skills
 - c. Obtain information about drawings and work with drawing files
 - d. Create and organize files associated with computer aided drafting
2. Apply standards required to produce technical drawings for mechanical, architectural, electrical and architectural engineering.
 - a. Examine and evaluate standards and processes to draft architectural, electrical and civil CAD drawings
 - b. Compare 2D CAD and its uses to 3D CAD and its applications in industry
3. Produce precise engineering drawings in 2D using AutoCAD.
 - a. Use the AutoCAD interface, a keyboard, cursor pointing device, and video graphics terminal to put drawing information into a computer to produce technical drawings
 - b. Set up drawings, use drawing aids, save drawings, and get help when needed
 - c. Draw line, basic shapes, geometric constructions, and edit drawings
 - d. Make Multiview layouts and plot or print drawings, including pictorial
 - e. Use display options to increase drawing flexibility
 - f. Place necessary annotations on technical drawings
 - g. Use the geometry calculator and filters
 - h. Use basic and advanced AutoCAD editing commands

- i. Create multiple patterns of drawing components
- j. Properly dimension drawings using AutoCAD dimension commands and variables

MAPPING LEARNING OUTCOMES TO GENERAL EDUCATION GOALS

[For each of the goals selected above, indicate which outcomes align with the goal.]

Goals	Outcomes
First Goal	
To apply analytical and problem solving skills to personal, social, and professional issues and situations.	Examine and evaluate standards and processes to draft architectural, electrical and civil CAD drawings. Students will compare 2D CAD and its uses to 3D CAD and it's applications in industry.
Second Goal	
To communicate successfully, both orally and in writing, to a variety of audiences.	Demonstrate understanding of basic drafting communication. Produce precise engineering drawings in 2D using AutoCAD.
Third Goal	
To understand and use technology effectively and to understand its impact on the individual and society.	Produce precise engineering drawings in 2D using AutoCAD .

COURSE TOPICS AND CONTENT REQUIREMENTS:

1. The AutoCAD software structure, drawing planning, computer procedures, toolbars and pulldown menus, dialog boxes, image tile menu, tablet menus, getting help, keyboard layout and functions commonly used terms and definitions, and working with disks.
2. Starting a drawing, drawing name, sheet sizes and scales, limits, units and setup. Use and AutoCAD template and create a single template. Use GRID and SNAP to assist in making a drawing.
3. CANCEL, SAVE, starting a new drawing, open a saved drawing, set up drawing aids in a template, work with GRID and SNAP, SAVETIME, QSAVE, STATUS.
4. Line conventions, LINE, point entry method, MULTIPLE, coordinate display, ORTHO, Close, Continue, UNDO, REDRAW, ERASE, types of lines, LINETYPE. Draw objects on separate layers using the LAYER command, create and manage layers, make a print.
5. Draw a circle, arc, ellipse, polygon, doughnuts and draw rectangles with and without chamfered and rounded corners.

6. Geometric constructions, object snap modes, using Object Tracking and use construction lines to assist in drawing multiviews and auxiliary views.
7. Placing text on a drawing, drawing scale factors, text justification options, creating title block templates, checking spelling, using proper standards.
8. View commands
9. Paper space layouts, plot configuration files, plotting options, plot scales, plotting hints.
10. Basic editing commands,
11. Automatic editing commands, using grips to edit with, editing using a dialog box.
12. Creating multiple entities with ARRAY.
13. Obtaining information about the drawing,
14. Introduction to Windows Explorer, listing, selecting, and working with AutoCAD files, copying moving, renaming, and deleting folders and files, recovering a damaged drawing, temporary files, user profile files, and importing, and exporting files.
15. Introduction to, drawing multiline, creating multiline styles, sketching with AutoCAD.
16. Drawing and editing polylines and splines,
17. Basic dimensioning, dimensioning and tolerancing practices and standards, dimension variables, units, decimal places, text size and style, symbols, dimension layers, creating and using dimension styles.
18. Students will introduced to the Design Process

INSTRUCTIONAL METHODS:

1. Lectures
2. Class demonstrations
3. Individual demonstration
4. Use of audio-visual aids
5. Assignments (drawing) both in class and out
6. Guest speakers
7. Field trips

INSTRUCTIONAL MATERIALS:

AutoCAD and Its Applications (current year) Shumaker

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

1. Good work and completion of all problems assigned.
2. Satisfactory test scores

Grading Scale

A=90-100

B=80-89

C=70-79

D=60-69

F=0-59

OTHER REFERENCES

Solid Professor

Course Competency/Assessment Methods Matrix

(Dept/# Course Name)	Assessment Options																															
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D						
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.																																
1. Demonstrate understanding of basic drafting communication.				X		X	X	X	X					X				X										X				X
2. Apply standards required to produce technical drawings for mechanical, architectural, electrical and architectural engineering.				X		X	X	X	X					X				X										X				X
3. Produce precise engineering drawings in 2D using AutoCAD.				X		X	X	X	X					X				X									X					X