

**Clatsop Community College**

## **DRF 213: Computer Aided Design I**

Fall 2013

4 Credit Hours

Instructor: Lucien Swerdloff

Location: IMTC Computer Lab

Times: MW 2:00-4:50pm



### **Course Description**

Introduction to computer aided design/drafting (CAD) as an integrated system to represent and communicate designs. Students gain and apply fundamental knowledge of CAD concepts and techniques. They use CAD systems to create, modify and display drawings and create design documents. Students work individually and collaboratively to analyze and solve design problems.

This course introduces computer aided design/drafting (CAD) as an integrated system to represent and communicate designs. It examines the hardware that comprises a CAD workstation and the operating system that enables the equipment to function as a unit. CAD topics covered include the user interface (coordinate systems, input/output methods, menus and commands); drawing basic objects (lines, circles, arcs and polygons); using drawing aids (grids, construction lines, snapping and tracking); controlling display (zooms, pans and views); modifying and editing objects; using text and tables; setting up, printing and obtaining information about drawings; and working with files.

### **Course Learning Outcomes**

After completing this course, students will be able to:

1. Describe and use the basic terms, concepts and techniques of CAD.
2. Use an operating system to organize and manage files and directories and perform routine system tasks.
3. Identify and properly operate CAD workstation components, including computer, keyboard, pointing device, display and printer.
4. Explain the features, limitations and considerations associated with the commands and characteristics of a CAD system.
5. Use a CAD system to create and edit basic objects, using drawing aids for accurate construction.
6. Use CAD and graphic systems to setup, create, modify and communicate basic design documents in a variety of disciplines.
7. Analyze and solve design problems, individually and collaboratively.

### **Instructor Information**

Office Hours: MW 1:00-2:00 – IMTC Computer Lab (MERTS Campus)

TT 4:00-5:30 – Art 102 (Main Campus)

F 12:00-1:00 – Art 102 (Main Campus)

Phone: 503.338.2301

Email: [lswerdloff@clatsopcc.edu](mailto:lswerdloff@clatsopcc.edu)

## Methodology

Class will meet for two 3 hour sessions per week. The first meeting will generally consist of presentations, discussions, demonstrations and tutorials. The second meeting will typically be used for review and lab time, providing extensive hands-on experience. Students will be required to do a number of exercises throughout the semester. Presentations and demonstrations given during class will provide a basis for the exercises. Students should expect to spend at least four hours per week outside of class time to work on exercises.

## Online

Blackboard: <http://bb4.clatsopcc.edu>

Email/SkyDrive: <http://home.live.com/>

Email Address: as specified in MyCCC

Login information:

UserName: first initial + last name + last four digits of student ID (e.g. jdoe9999)

Password: birthday in format YYYYMMDD (e.g. 19881204)

## Recommended Corequisites

CS 131 or MIC 145; and DRF 139 or BLD 140.

## Required Text

*Discovering AutoCAD 2013*, Dix and Riley, Prentice Hall, 2013.

## Required Materials

USB Flash Drive, Sketching paper and pencils, Architect's scale

## Attendance and Participation

Attendance and participation in all classes is strongly recommended and necessary for successful completion of the course and learning of AutoCAD. The learning of a complicated software system such as AutoCAD requires time, practice and patience. The course will introduce many topics. It will be necessary to spend a considerable amount of time working on the system and interacting with other students in order to grasp the tools and concepts covered.

## Grading

Exercises will be graded for content, completeness and presentation that demonstrate an understanding of the issues covered. All exercises and chapter reviews will be due at the beginning of class on the specified due date. Class participation, attendance and initiative will be considered in the evaluation process.

Grading will be determined as follows:

Exercises	60% (6@10% ea.)
Chapter Reviews	12% (6@2% ea.)
Presentation	8%
Exams	20% (2 @10% ea.)

## Chapter Reviews

Answer and submit the Chapter Test Questions at the end of each assigned chapter.

## Useful Resources

Textbook companion website <http://www.pearsonhighered.com/CADtutor/>

CADalyst online journal <http://www.cadalyst.com>

CADdigest online journal <http://www.caddigest.com>

CAD shareware at the CAD depot <http://www.caddepot.com>

Autodesk web site <http://www.autodesk.com>

Autodesk student site: <http://students.autodesk.com/>

The CAD Academy: <http://thecadacademy.com/>

## SCHEDULE

### 1. Introduction and Quickstart

**M 30 Sep.** course overview, computer aided design, AutoCAD quickstart (drawing, erasing, editing lines), the interface (drawing window, UCS icon, model/layout tabs, ribbon, menu browser, quick access toolbar, AutoDesk Exchange, command window, status bar, dialog boxes), input (coordinates, dynamic input, grid, snap, shortcut menus), commands, file dialogs (new, save, open), cartesian coordinates

**W 2 Oct.** lab

Read: ch. 1; Exercise 1

### 2. Basic Drawing and Drawing Aids

**M 7 Oct.** grid and snap settings, ortho mode, drawing units, drawing limits, object selection (window, crossing, last, previous), command options, coordinates (absolute, relative, polar), rectangle, circle, dynamic input settings, AutoCAD help, Autodesk Exchange, cutting and pasting between applications

**W 9 Oct.** lab

Read: ch. 2; Exercise 2

### 3. Layers

**M 14 Oct.** layers, layer properties manager, color, linetype, linewidth, layer list box (on/off, freeze/thaw, lock/unlock), polygon, construction lines, fillet, chamfer, measure

**W 16 Oct.** lab

Read: ch. 3; Exercise 3

### 4. Display and Basic Editing

**M 21 Oct.** zoom and pan, redraw/regen, undo/redo, introduction to object snap, introduction to text, move, copy, point, named views

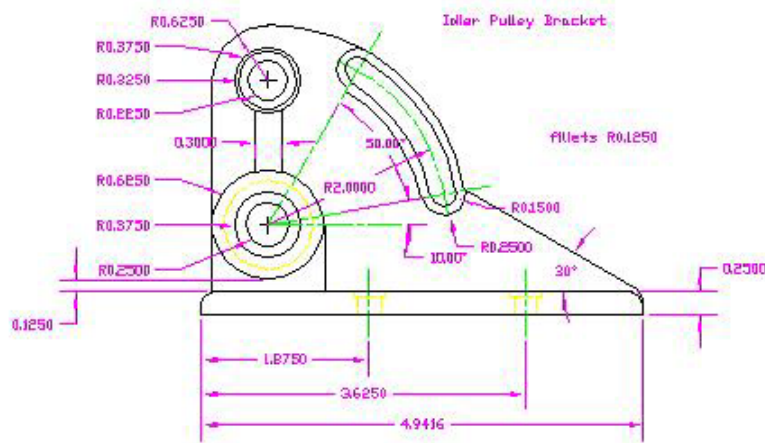
**W 23 Oct.** lab

Read: ch. 3

### 5. Review, Student Presentations; Exam 1

**M 28 Oct.** review, student presentations

**W 30 Oct.** exam 1



## 6. Templates, Model and Paper Space

**M 4 Nov.** introduction to model and paper space, layout and model tabs, viewports, drawing limits, page setup dialog, templates, rectangular array

**W 6 Nov.** lab

Read: ch. 4; Exercise 4

## 7. Templates

**M 11 Nov.** Veterans Day - No Class

**W 13 Nov.** templates and title blocks, editing with grips, review

## 8. More Drawing, Editing and Drawing Aids

**M 18 Nov.** polar array, arcs, mixing lines and arcs, introduction to polylines, rotate, mirror, polar tracking, review page setups, properties palette

**W 20 Nov.** lab

Read: ch. 5; Exercise 5

## 9. Object Snap, Editing and Layouts

**M 25 Nov.** object snap (override and running), object snap tracking, offset, stretch, trim, extend, layouts, viewports, scaling

**W 27 Nov.** lab

Read: ch. 6; Exercise 6

## 10. Review; Lab

**M 2 Dec.** review

**W 5 Dec.** lab

## 11. Finals Week

**M 9 Dec.** exam 2

## Notes

Readings should be done before the week's classes. Exercise due dates are indicated on exercise sheet. Chapter Reviews are due with exercises. The above schedule is a general outline for the course; changes will be made as necessary.

