

Clatsop Community College

## DRF 215: Computer Aided Design III

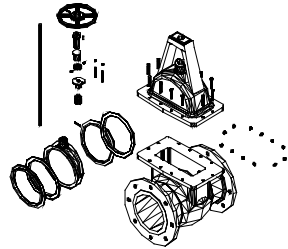
Spring 2013

4 Credit Hours

Instructor: Lucien Swerdloff

Location: IMTC Computer Lab

Times: MW 2:00-4:50pm



### Course Description

Students gain and apply knowledge of three dimensional CAD concepts and techniques. They use CAD systems to create, manipulate and view surface and solid models, renderings and presentation documents. Students work individually and collaboratively to analyze and solve design problems.

This course is the third in a three course sequence. It examines techniques and methods of creating, manipulating and viewing three dimensional models and customizing the software. AutoCAD topics covered include isometric drawing, 3D coordinate systems, 3D viewing, surface models, solid models, rendering, customizing menus, toolbars and system settings, and working with Internet features.

### Course Learning Outcomes

After completing this course, students will be able to:

- Describe and use terms, concepts and techniques of 3D CAD.
- Use three dimensional modeling techniques to create, modify and render models.
- Use CAD systems to setup and manipulate viewing parameters and coordinate systems, and manipulate surface and solid models
- Create and use Internet compatible drawings.
- Perform basic CAD system customization.
- Use CAD and graphic systems to produce and communicate design documents in a variety of disciplines.
- Research, analyze and solve design problems, individually and collaboratively.

### Methodology

Class will meet for two 3 hour sessions per week. The Monday meeting will generally consist of presentations, discussions, demonstrations and tutorials. The Wednesday 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 term. 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.

### Prerequisite

DRF 214 or instructor approval.

### Required Text

*Discovering AutoCAD 2012*, Dix and Riley, Prentice Hall, 2012.

## Required Materials

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

## Online

Blackboard: [bb4.clatsopcc.edu](http://bb4.clatsopcc.edu)

Email/SkyDrive: [home.live.com/](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)

## 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% (4@15% ea.) |
| Chapter Reviews | 10%             |
| Project         | 10%             |
| 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://prenhall.com/dixriley>

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

## Instructor Information

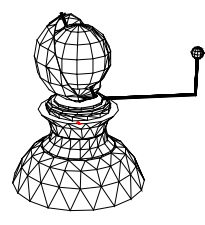
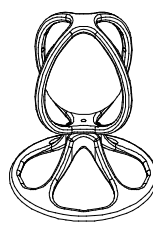
Office Hours: MW 1:00-2:00 – IMTC Computer Lab (MERTS Campus)

TT 4:00-5:30 – Towler 205 (Main Campus)

F by appointment

Phone: 503.338.2301

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



## **SCHEDULE**

### **1. Course Overview; Review and Beyond**

**Mon 1 Apr.** introduction to 3D modeling; review: multiple viewports, scaling, layouts, printing, blocks, attributes, external references

**Wed 3 Apr.** lab

Review: ch 7-10; Read: sections 10-10, 10-11 and 10-12; Exercise 1

### **2. Isometric Drawing 1**

**Mon 8 Apr.** concepts of isometric drawings, constructing isometric drawings

**Wed 10 Apr.** lab

Read: ch. 11; Exercise 2

### **3. Isometric Drawing 2; Dynamic Blocks**

**Mon 15 Apr.** text and dimensions in isometric; dynamic blocks

**Wed 17 Apr.** lab; project proposal

Read: section 10-4, 10-5 and 10-6

### **4. 3D Modeling and Viewing**

**Mon 22 Apr.** types of 3D models: wireframe, surface and solid; 3D coordinate system; 3D viewing; tiled viewports; making 3D objects

**Wed 24 Apr.** lab

Read: ch. 12; Exercise 3

### **5. 3D Solids 1**

**Mon 29 Apr.** 3D Modeling Workspace; solid primitives; DUCS; boolean operators: union, subtraction, intersection; fillet, chamfer; polysolid

**Wed 1 May.** lab; project draft

### **6. Rendering; Exam 1**

**Mon 6 May.** visual styles, rendering; lights; materials; saving rendered images

**Wed 8 May.** exam 1

Read: section 12-10

### **7. 3D Solids 2**

**Mon 13 May.** extrude; revolve; regions; creating multiview layouts (solview and soldraw); slice; section

**Wed 15 May.** lab; project presentation

Read: ch. 13; Exercise 4

### **8. Advanced 3D Modeling**

**Mon 20 May.** sweep; helix; loft; press/pull; slice; shell; imprint; solid editing; gizmos

**Wed 22 May.** lab; project presentation

### **9. 3D Surfaces**

**Mon 27 May.** Memorial Day: college closed

**Wed 29 May.** introduction to 3D mesh modeling; primitives; ruled, tabulated, revolved and edge surfaces; subobject filters

### **10. Customizing; Communicating; Review**

**Mon 3 Jun.** customizing the user interface; workspaces; tool palettes; setting and saving options; transmitting, publishing and viewing drawings and DWF files

**Wed 5 Jun.** lab

Read: appendix B, appendix C and appendix D

### **11. Exam 2**

**Mon 10 Jun.** exam 2

## **Notes**

Readings should be done prior to week's classes. Exercise due dates are indicated on exercise sheet. Chapter Reviews are due with exercises. Changes will be made to the above schedule as necessary.

Students with documented disabilities are entitled to reasonable accommodations. Request accommodations as soon as possible through the Disability Services office: 503-338-2474, TDD 503-338-2902, or [criehl@clatsopcc.edu](mailto:criehl@clatsopcc.edu)

