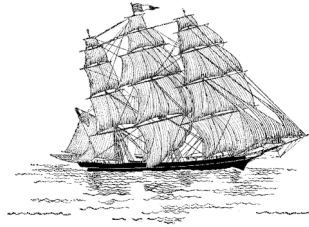


# Architecture 207a: Computer Aided Design / Drafting

Sample Course Description Based on Spring 2006  
for current information, please email Prof. Karen Kensek at [kensek@usc.edu](mailto:kensek@usc.edu)  
Updated 8 December 2005



## General Description

Computer Aided Design/Drafting (CADD) has become an essential tool for architecture students while in school and for the profession. This course includes instruction in applying CADD techniques: producing measured two-dimensional drawings, building three-dimensional models, and rendering images. This course will focus on AutoCAD and form•Z including RenderZone. Homeworks will be given in these areas, and the final grade for the course will be based on completion of these assignments. Students will be expected to purchase reference materials, Zip disks or USB flash device, and output materials (color printouts and plots). As the course focuses on graphic applications, it is equally applicable to engineering, film, cinema, theater, and others who have an interest in two-dimensional and three-dimensional computer modeling and rendering. If you have had substantial background using software such as AutoCAD 2D and a 3D modeling and rendering program, you might consider enrolling in a more advanced course. Check with the instructor to see what course would be appropriate: Architecture 207b, Architecture 407, or Architecture 507.

You must sign up for both lecture (# 11220 R) and lab (# 11222 R). Architecture 207a (2 units) meets for the first half of the semester only. Architecture 207b (2 units) meets at the same time for the second half of the semester. It is intended that students sign up for both Architecture 207a and Architecture 207b concurrently if they wish to have a full semester long set of courses (4 units total).

## Homework Assignments

Assignments are usually one week in duration; although usually due on Mondays, please consult the dates on the syllabus for the specific due date for each assignment. Late assignments will not be accepted; turn in what you have on the due date. It is crucial that you turn in whatever you have done on the due date; the assignments build upon each other. There are five homework assignments. The last assignment is your final project/exam. Grades will be posted on Blackboard at [totale.usc.edu](http://totale.usc.edu). Students are strongly encouraged to come by with work in progress for suggestions before the assignment is due and come by after grading to learn how they could improve in the future.

## Required Items

You will need at least three PC formatted Zip disks or USB flash devices or a combination of the these: one for your assignment, one as a backup, and one for turning in assignments if required. Label all disks with your name and e-mail address.

A USC e-mail account is required for this course. Go on-line and verify that your USC account is working. Call 0-5555 if you have problems accessing your account. You will need to use your **USC account** for posting some assignments and for reading your email. Read your e-mail at least once a day!

There is a required text book for this class. It is **Residential Design using AutoCAD 2006** by Daniel John Stine. All *Lessons* listed are from this book. It should be available at the USC Bookstore. It is also on reserve in the AFA library.

Additional reference manuals for form•Z and RenderZone are also available as pdf files on Blackboard; please **do not** print them out but use them with Acrobat Reader only on your personal computer; they are very long and more easily searchable digitally.

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**WEEK 1: INTRODUCTION TO THE CLASS AND FORM•Z**

1/9 10 - 11:50 am Watt 1  
Lecture: Introduction, Administration, Assigning the Project  
Pick up syllabus, course description, show examples, Blackboard  
How to scale a drawing  
form•Z: model, draft, underlay, introduction, saving images, image size, printing  
(projector: formZ)

**Buy required textbook.**

The following readings are pdf files on Blackboard.

**Read:** form•Z: A Very Short Introduction and A Quick Model

**Read:** form•Z: Introduction to Computer Modeling (cube project)

**Read:** form•Z: Creating and Editing Objects in form•Z

Pre-homework 1: preparing for drawing your building

1/11 10 - 11:50 am WPH B36  
Lab: form•Z (holes, layers, Boolean operations, etc.)

The following readings are pdf files on Blackboard.

**Skim:** formZ User Manual 5.0.pdf

**Skim:** formZ 5.5 Addendum.pdf

**Pre-homework 1 due**

Homework 1: Introduction to Surface & Solid Modeling (3D model)

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**WEEK 2: FORM•Z**

1/16 **Holiday**

1/18 10 - 11:50 am WPH B36  
Lab: more form•Z (revolve, sweep, working planes, terrain, etc.)

**Homework 1 due**

Homework 2: Surface and Solid Modeling (improved model)

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**WEEK 3: RENDERZONE**

1/23 10 - 11:50 am WPH B36  
Lecture: RenderZone: show student examples; background image  
Hands-on (and list on the board):  
Views, shadows, perspectives  
Lights: ambient, direct, spot, cone, projector  
Surface styles: texture, transparency, reflection, bump, image

**Skim:** RenderZone RadioZity Manual.pdf (on Blackboard)

1/25 10 - 11:50 am WPH B36  
Lab: RenderZone  
**Bring your current form•Z model to class**  
RenderZone using student models.

**Homework 2 due**

Homework 3: RenderZone

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**WEEK 4: INTRODUCTION TO AUTOCAD**

1/30	10 - 11:50 am	WPH B36	Lab: Introduction to AutoCAD Give out AutoCAD workshops and reference material. Transferring files from form•Z to AutoCAD Workshop A.02  <b>Read:</b> “How I Stopped Worrying and Learned to Love AutoCAD” by Marc Clayton. <b>smart architecture</b> , ACADIA Conference Proceedings 2005, edited by Osman Ataman, copyright 2005. On reserve under KENSEK in the AFA Library.  <b>Read:</b> <i>Lesson 1</i> in “ <b>Residential Design using AutoCAD 2006</b> ”
2/1	10 - 11:50 am	WPH B36	Lab: AutoCAD  <b>Bring Workshop A.03 to class.</b>  <b>Read:</b> <i>Lesson 2</i> in “ <b>Residential Design using AutoCAD 2006</b> ”  <b>Homework 3 due</b> Homework 4: Introduction to Computer-Aided Drafting (elevations or sections)

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**WEEK 5: AUTOCAD**

2/6	10 - 11:50 am	WPH B36	Lab: Creating and modifying objects in AutoCAD Review (commands and icons): don't use paper space for now, right click tool bars, selecting objects, zoom, layer, change properties, line weights, trim/extend, plot; questions <i>Lesson 3</i> and <i>Lesson 4</i> : save files to bring to next class period  <b>Bring “Residential Design using AutoCAD 2006” to class</b>
2/8	10 - 11:50 am	WPH B36	Lab: continue work in book <i>Lesson 5</i> and <i>Lesson 6</i> : save files to bring to next class period  <b>Bring “Residential Design using AutoCAD 2006” to class</b>  <b>Homework 4 due</b> Homework 5: CAD (plans, 11"x17", dimensions, library elements)

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**WEEK 6: MORE AUTOCAD TECHNIQUES**

2/13 10 - 11:50 am WPH B36 Review: blocks, external furniture files, dimensioning, and hatching  
Review: Design Center default tab and also AutoCAD  
2006\Sample\DesignCenter\Landscaping.dwg), scale of blocks  
from other drawings, Tool Palette, dynamic blocks (select block  
and then select from a list of choices)  
*Lesson 7 and Lesson 8:* save files to bring to next class period

**Bring “Residential Design using AutoCAD 2006” to class**

2/15 10 - 11:50 am WPH B36 Lecture: mspace / pspace and plotting  
Review: transferring files to and from form•Z and AutoCAD  
If time, finish *Lessons*

**Bring “Residential Design using AutoCAD 2006” to class**

**Homework 5 due**

Final Project/ Exam: Synthesis and Plotting (24”x36”)

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**WEEK 7: PLOTTING TECHNIQUES**

2/20 **Holiday**

2/22 10 - 11:50 am WPH B36 Discuss: bring student sample files; critique current student plots

**Bring in-progress AutoCAD files AND plot to class**

**Final Project/Exam in-progress due**

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**WEEK 8: QTVR AND ANIMATION**

2/27 10 - 11:50 am WPH B36 Lecture: form•Z animation, QuickTime VR, and the Imager

**Final Project/Exam due**

**Last day of Architecture 207a.**

3/1 10 – 11:50 am WPH B36 **Begin Architecture 207b.**

Please read.

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## REHABILITATION ACT (LAB 504) AND THE AMERICANS WITH DISABILITIES ACT (ADA)

The University of Southern California is committed to full compliance with the Rehabilitation Act (Lab 504) and the Americans with Disabilities Act (ADA). As part of the implementation of this law, the University will continue to provide reasonable accommodation of academically qualified students with disabilities so those student can participate fully in the University's educational programs and activities. Although USC is not required by law to change the "fundamental nature of essential curricular components of its programs in order to accommodate the needs of disabled students," the University will provide reasonable academic accommodations. The specific responsibility of the University administration and all faculty serving in a teaching capacity is to ensure the University's compliance with this policy. The general definition of a student with a disability is any person who has "a physical or mental impairment which substantially limits one or more of such person's major life activities," and any person who has "a history of, or is regarded as having, such an impairment." Reasonable academic and physical accommodations include but are not limited to: extended time on examinations; substitution of similar or related work for a non-fundamental program requirement; time extensions on papers and projects; special testing procedures; advance notice regarding book list for visually impaired and some learning disabled students; use of academic aides in the classroom such as note takers and sign language interpreters; early advisement and assistance with registration; accessibility for students who use wheelchairs and those with mobility impairments; and need for special classroom furniture or special equipment in the classroom.

### Obtaining Accommodations

#### Physical Accommodations

Students with physical disabilities should contact Disability Services and Programs (DSP) prior to or during the first week of class attendance or as early in the semester as possible. The office will work with classroom scheduling, the course instructors and their departments, and the students to arrange for reasonable accommodations.

#### Academic Accommodations

Students seeking academic accommodations due to a physical or learning disability should make the request to the course instructor prior to or during the first week of class attendance, as well as registering with DSP as early in the semester as possible. Course instructors should require that a student present verification of documentation when academic accommodations are being requested. For assistance in how to provide reasonable accommodations for a particular disability, course instructors are encouraged to consult with Disability Services and Programs (DSP). Students requesting academic accommodations who do not have DSP documentation should be referred to that office.

**Disability Services & Programs contact: (213) 740-0776**

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## RELIGIOUS HOLIDAYS

The University of Southern California recognizes the diversity of our community and the potential for conflicts involving academic activities and personal religious observation. The University provides a guide to such observances for reference and suggests that any concerns about lack of attendance or inability to participate fully in the course activity be fully aired at the start of the term. As a general principle students should be excused from class for these events if properly documented and if provisions can be made to accommodate the absence and make up the lost work. Constraints on participation that conflict with adequate participation in the course and cannot be resolved to the satisfaction of the faculty and the student need to be identified **prior to the drop/add date for registration**. After the drop/add date the University and the School of Architecture shall be the sole arbiter of what constitutes appropriate attendance and participation in a given course.