

ID 217 – Introduction to Computer Aided Design in AutoCAD 2011

Spring 2013

Chaminade University

Mondays and Wednesdays from 6 pm until 8:50 pm

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Course Description

Students will learn how to create architectural construction documents using AutoCAD 2011

Course Objectives

This course has three objectives: how to use AutoCAD 2011, how to organize information and how to present this work.

Students will learn by doing. Upon completion, they will be able to confidently create construction documents for a small renovation project. Construction documents include: title sheet, floor plan, elevations, electrical, lighting, countertop, soffit, flooring and detail plans, door and window schedules. During this course, students will learn a little about file organization, construction, budgeting and cabinetry. Only AutoCAD's 2D tools will be covered.

Course Outline

After an introduction to AutoCAD's workspace, the first task is to create a logo and customize their sheet borders. Then, we will begin with a small residential bathroom project. Students will learn how to create the floor plan, elevations, countertop plan, flooring plan, lighting, electrical, and soffit plans. They will calculate the quantities for the flooring and wall covering and prepare documents to obtain a countertop and splash quote. Notations for blocking and placement of the shower fixtures and lighting will be included.

Next, the students will be tasked to create both an independent-living master bath and a commercial restroom employing universal design principles and following ADA guidelines. These drawings will also include notations required to obtain a building permit.

Class Structure

Each class will begin with a review of what was addressed in the last class (approximately 10 minutes). There will be a chance for short questions and then I will introduce the next topic (approximately 25 minutes). Students will then work on their projects; I will work with each student individually during this remaining time.

Grading

Grading is based on attendance (35%), class participation and preparation (30%) projects and final (35%).

Required Text

AutoCAD 2011 for Interior Design and Space Planning

WEEK #1

14 and 16 January

Customize:

- crosshairs
- crosshair color
- right-click
- import toolbars
- set OSNAPS (F3)

Commands:

L	line	divide
PL	polyline	erase
PE	polyline edit	explode
O	offset	array
C	copy	block
M	move	wblock
M ; P	move, previous	F3
Z ; E	zoom extents	F8
C	circle	F2
TR	trim	TM1
EX	extend	TM0
F	fillet	ltscale
F ; R	fillet ; radius	attdef
REC	rectangle	ellipse
RO	rotate	
MI	mirror	
MT	multi-line text	
S	stretch	
U	undo	
DI	distance	
ED	edit dimension	
PS	paperspace	
SC	scale	
A	arc	

Review commands and file organization
Individual help with logos and sheet borders

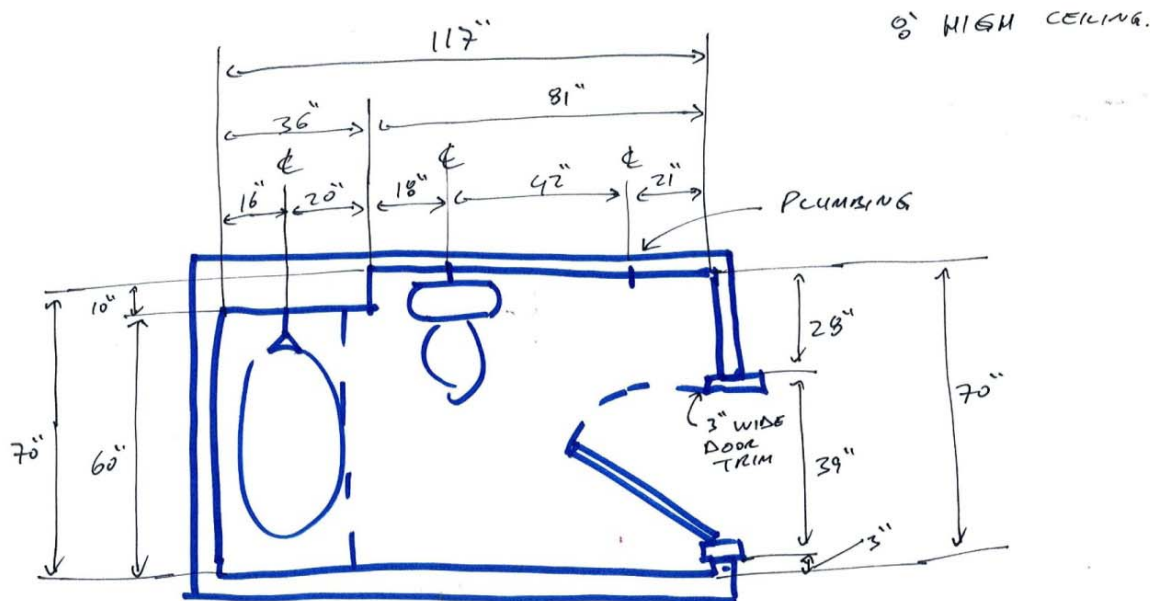
WEEK #2

21 and 23 January

Layers

Start **Bath Project 1:**

BATH PROJECT #1



Assignment

Draw:

- Floorplan
- Two elevations
- Soffit plan (reflected ceiling plan)
- Flooring plan

Review video: <http://www.youtube.com/watch?v=sV2aCpR53ko>

(How to install a flat jamb interior door – The Home Depot)

Please review :

<http://books.google.com/books?id=rfji7Vxez7YC&pg=PA210&lpg=PA210&dq=blocking+for+grab+bars&source=bl&ots=MeMGCv3oUj&sig=OD0i3stpvQQxDRVkjRYQIYkQ5Iw&hl=en&sa=X&ei=MF0QUbfEH-SXiALeroDYAg&sqi=2&ved=0CHIQ6AEwBg#v=onepage&q=blocking%20for%20grab%20bars&f=false>

Black & Decker The Complete Guide to Dream Bathrooms

Layer states manager

Create new layer

Vplayer

View

Mview

Xref

Dimensions

hatch

Internet research, Design Center

WEEK #3

28 and 30 January

Review commands

Set up sheets and print, combine into multiple-page pdf
complete Bath Project 1 drawing set

WEEK #4

4 and 6 February

Start **Master Suite Project 2** -- bedroom and bath of own design to incorporate independent-living space planning elements.

Goal: to produce competent contract documents including coordinated drawings, schedules, and specifications appropriate to project size and scope and sufficiently extensive to show how design solutions and interior construction are related.

In this project we will generate the following:

- Floorplan
- Finished wall dimension plan
- Elevations (at least four)
- Electrical plan
- Lighting plan
- Countertop plan
- Soffit plan
- Flooring plan
- Finish schedule
- Door & window schedule

Plan for and note at least three guidelines from the:

U.S. Department of Justice 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

http://www.ada.gov/2010ADAstandards_index.htm

Ctrl + Tab to jump between drawings

Ctrl + C copy

Ctrl + V paste

Units

WEEK #5

11 and 13 February

Area

Continue with Master Suite Project 2

Add niches and accent tiles in shower, text with leaders.

Calculate quantities for flooring and wall covering

WEEK #6

18 and 20 February

continue Master Suite Project 2

Door and window schedule

Fixture schedule

WEEK #7

25 and 27 February

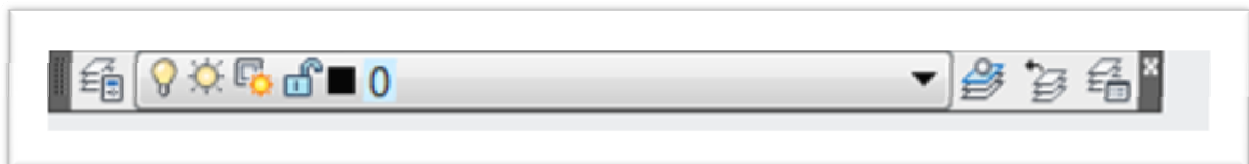
Continue with Master Suite Project 2 drawing set.

WEEK #8

4 and 6 March

complete Master Suite Project 2 drawing set.

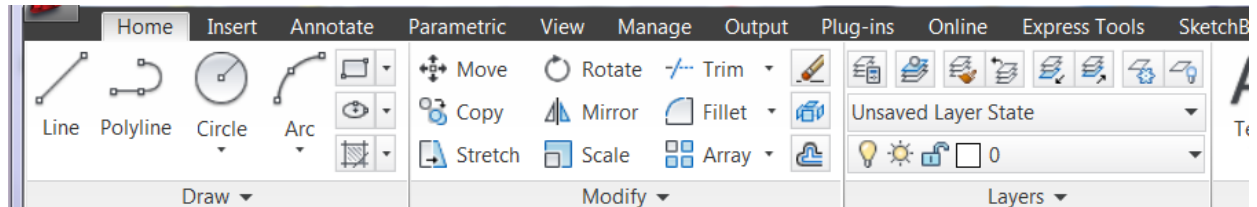
LAYERS tool bar



VIEWPORTS tool bar



ISOLATE and UNISOLATE



WEEK #9

11 and 13 March

Project 3: Design and create the detail drawings for a custom bed: plan, elevations, section. Detail how this bed will be built.

Block

Wblock

Block editor

WEEK #10

18 and 20 March

City and County of Honolulu building code:

International Building Code, 2006 Edition

<http://publicecodes.cyberregs.com/icod/ibc/2006f2/index.htm>

Exceptions:

1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than two stories high with separate means of egress and their accessory structures shall be permitted to comply with the International Residential Code.
2. Existing buildings undergoing repair, alterations or additions and change of occupancy shall be permitted to comply with the International Existing Building Code.

International Residential Code for One- and Two-Family Dwellings, 2006 Edition,

<http://publicecodes.cyberregs.com/icod/irc/2006f2/index.htm>

Building permit checklist:
<http://dev.honolulu.gov/ApplicationsForms.aspx>

Also helpful:
<http://www1.honolulu.gov/council/ocs/roh/>
<http://www.nkba.org/Design/Professionals/Guidelines.aspx>

Start **ID270 Project 4**

WEEK #11
 25 and 27 March

No class—Spring Break

WEEK #12
 1 and 3 April

Furniture layout and blocks for ID270 Project 4; furnish spaces and review traffic flow

note egress, illumination, smoke detectors

finish schedule:

TABLE 2-1 Room Finish Schedule

Room Name	Floor	Base	Walls	Finish	Ceiling		Remarks
					Material	Height	
BASEMENT							
Utility/Storage	CONC	NONE	CONC	UNFINISHED	UNFINISHED	7' 9½" (±)	
Stair	CARPET	HARDWD	GYP. BD.	PAINT	GYP. BD.	VARIES	
1ST FLOOR							
Bedroom	CARPET	HARDWD	GYP. BD.	PAINT	WOOD	8' 0" / 7' 0" **	*GYP. BD. SOFFITS/CLOSET CEILING
Bath	CER. TILE	CER. TILE	GYP. BD./ CER. TILE	PAINT/CER. TILE**	GYP. BD.	8' 0" / 7' 0" **	*GYP. BD. SOFFITS **CER. TILE AT TUB ENCLOSURE AND 36" WAINSCOT
Great room (kitchen/dining/sitting)	HARDWD	HARDWD	GYP. BD.	PAINT	GYP. BD.	8' 0" / 7' 0" **	*GYP. BD. SOFFITS
Stair	CARPET	HARDWD	GYP. BD.	PAINT	GYP. BD.	VARIES	
Porch	WOOD	NONE	CEDAR*		WOOD	VARIES	*SEE EXTERIOR ELEVATIONS
ATTIC							
Grandma's attic and nook	CARPET	PINE	PINE/GYP. BD.*	OIL/PAINT*	PINE	7' 0"	*(EAST) END WALL ONLY
Stair	CARPET	HARDWD	GYP. BD.	PAINT	PINE/GYP. BD.*	VARIES	*AT LANDING
ABBREVIATIONS: CONC—CONCRETE GYP. BD.—GYPSUM BOARD CER. TILE—CERAMIC TILE HARDWD—HARDWOOD							

WEEK #13

8 and 10 April

Door and window schedule

Importing text and images into CAD

Electrical and lighting plans

Review distribution systems including power, mechanical, HVAC, data/voice telecommunications, and plumbing

Continue with ID270 Project 4 drawing set.

WEEK #14

15 and 17 April

Continue with ID270 Project 4 drawing set.

WEEK #15

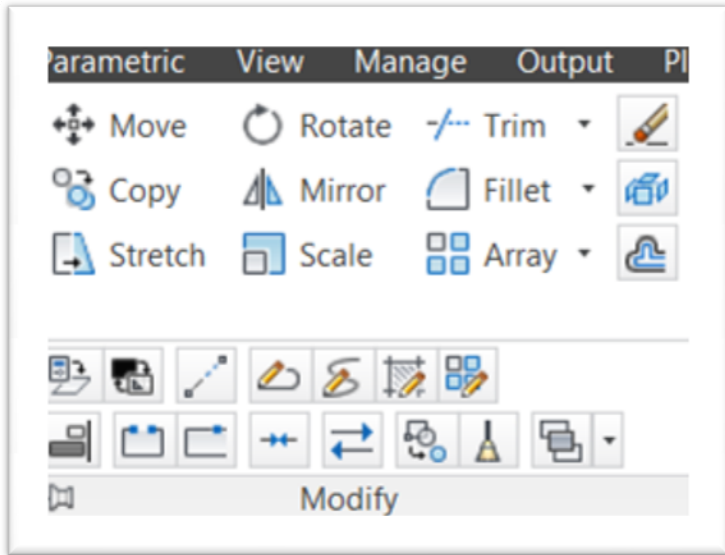
22 and 24 April

I@x<x

Purge

Break

Join



complete ID270 Project 4 drawing set.

WEEK #16

29 April and 1 May

Sketchup