autocad2007教材（Autocad2007 materials）

Software name: AutoCAD 2004

Lesson one:

An overview of CAD

C - > Computer Computer

A - Aided auxiliary

D - the Design Design

CAD is computer aided design software

Introduction to software:

AutoCAD is a software developed by U.S. Auto desk to make graphic graphics

History of CAD

The primary stage - the release of Auto CAD1.0 in November 1982

In April 1983, the version of Auto CAD1.2 appeared

In August 1983, there was a version of Auto CAD1.3

The release of Auto CAD1.4 appeared in October 1983

In October 1984, there was a version of Auto CAD2.0

In the development phase, Auto CAD2.17 and 2.18 appeared on the mouse scroll in May 1985

The release of Auto CAD2.5 appeared in June 1986

In September 1987, there were versions of Auto CAD9.0 and 9.03

The advanced stage of development: Auto CAD version 12.0 appeared in August 1988

In December 1988, Auto CAD R 12.0 for Dos was introduced

In June 1996, Auto CAD R 12.0 for Windows appeared

Advanced stage of development: Auto CAD R 13.0 for Windows in January 1998

In January 1999, Auto CAD 2000 for Windows appeared

In September 2001, Auto CAD 2002for Windows

In May 2003, Auto CAD 2004 for Windows appeared

What we learned was the 2004 edition

Application: make construction drawings, construction drawings, mechanical drawings, circuit diagrams, clothing drawings, etc.

Ii. Window composition:

Title bar:

The menu bar:

Toolbar: the default six (standard toolbar, layer toolbar, object feature, drawing toolbar, modify toolbar, style toolbar)

View area: working interface, including two parts (coordinate axes and cross cursors)

Model and layout: design drawing in model space, usually printed in the layout drawings, layout on behalf of the drawings, known as the drawing space, each layout can contain different print setup and drawing size, right-click on the shortcut menu layout

Command input area: a place for the user to enter the command through the keyboard, below the graphical window, and open by the shortcut key F2.

Status bar: the left side is the information prompt area, which displays the current coordinate position of the mouse pointer, the tool press the display information, etc.; On the right side is the function button area, click different function button, can open (or close) its corresponding function. You can increase the speed of the graph.

? Capture: used to determine the distance of the mouse pointer moving in the X and Y direction at a time, (with a grid, setting) F9

? Grid: used only for supporting positioning, when opened, the screen will be full of grid dots F7

? Orthogonal: orthogonal mode is used to control the types of lines that users can draw. Open to draw vertical lines and horizontal lines. F8

? Axis: helps users to draw horizontal or straight lines. You can set the Angle and so on F10

? Object capture: click on the key points on the drawn object at any time when drawing the graph, and the key points captured are marked with a small rectangular box.

At the same time the mouse pointer below shows the capture point. F3

? Object tracking: press, indicating that the user will have other object capture points to anchor points when drawing. F11

? Line width: press down, you can switch between display \ close line width display.

? Model: press down to switch between model space and drawing space.

Mouse feature: left key: the first and selected object (solid line for full package, dotted line half package)

Roller: press and hold the scroll wheel to show the full screen

Right: confirm and repeat the previous operation

Use of coordinate system:

Lesson 2:

Used in CAD are world coordinates:

X is horizontal, Y is vertical, Z is perpendicular to the X, Y plane, and these are fixed, so they're called world coordinates.

It is divided into absolute coordinates and relative coordinates in the world coordinate system

Absolute coordinates: it is divided into absolute rectangular coordinates and absolute polar coordinates

The absolute right Angle is the distance between point X and Y vertical direction (with positive and negative points), input method: (X, Y) value, must be in the English state when entering

Absolute coordinates: is give directions to the distance between the origin of coordinates is polar radius, the

connection with the X axis is the Angle between the degree of polar Angle, as for counterclockwise, negative for clockwise, the input methods: polar radius < number of polar Angle

Input must be in English

Relative coordinates: divided into relative rectangular coordinates and relative polar coordinates

Relative rectangular coordinates: the difference between the point and the previous input point, the relative symbol "@", the input method: @x, the value of Y must be in the English state when input

On the relative coordinates: refers to that point and the distance between the input point for polar radius, the connection with the X axis is the Angle between the degree of polar Angle, relative to the symbol "@", as for counterclockwise, negative values for input methods: clockwise @ polar radius < number of polar Angle

Input must be in English

Extra-curricular homework: use relative polar coordinates to make a five-pointed star, the side length custom

Lesson 3:

Drawing toolbar:

Line (L) line:

There are several ways of drawing a line:

? Select the line command under the drawing menu

? Click the "line" in the drawing toolbar

? Type (L) command on the command line

During the drawing of the line segment, if you type U to give up the current point, close the input C

1. Delete object: E

Several ways to delete objects:

? Select, press Delete

? Modify the delete in toolbar, click object, right click

? Enter (E) on the command line, select the object, enter the key

2. Construction line (XL) xline:

The line created is infinitely long. Several ways to create:

? Select the construction line command under the drawing menu

? Click the "construction line" in the drawing toolbar button,

? Type (xl) command on the command line

After entering the XL return, H is the horizontal structure line, V is the vertical construction line, A is the Angle, B is the second equal point, O is the auxiliary function of offset (return vehicle, offset distance)

Ray Ray: a line that extends in one direction

A, select "Ray" under the "drawing" menu, and enter Ray in the command line

4. Multi-line \ parallel line mL (mline) : multiple parallel lines are called multi-lines, and the lines created are the whole, which can save multi-line styles or use the default two element styles. You can also set the color, line, and display of each element, as well as to show or hide multiple connections. Connectors are lines that appear at each vertex of a multi-line element. Multiple lines can be used with multiple endpoint seals, such as a straight line or an arc.

Starting point: specify the next point, give up (U), close (C)

For positive J: input to the positive type [upper (T)/no (Z)/lower (B)] < current type > : input options or press ENTER

Ratio S: control the width of the multiline, without affecting the linear proportion. Input multiline ratio < current value > : input ratio or press ENTER

Style ST: specify multiline styles, type in multiline style name or [?] Input style name or input? (shift + /) name description

In the scene there is a change in style, cannot be determined, must be deleted, to change the style name

In the format menu, "multi-line style" name, add, rename, element characteristics, multi-line characteristics

Element properties: set the offset, color, and line shape to add lines

Multi-line feature: display connection, seal, Angle and fill color

The inner arc of the seal must be four or more to connect

Lesson 4:

1. Multi-line \ edit line (PL) pline: a sequence line segment created as a single object. Drawing is a whole, and the line creates an independent object that can create a line segment, an arc, or a combination of the two.

Arc A, close C, half width H, length (line) L, give up U,

width (full width) W

CAD random drawings: the C plate-program Files - Auto CAD2004 installation directory - the sample sample - designcenter

Rectangular Rec: straight lines are all independent edges, and the rectangle is a whole.

Steps to draw the rectangle:

1) select the "rectangle" or the button in the toolbar or enter the Rec from the command line from the drawing menu

2) specify the location of the first corner of the rectangle

3) specify the location of the other corners of the rectangle

Chamfering C,

The rounded, F,

Width (W) : width of line,

Thickness (T) : the height of cuboid,

Elevation (E) : lifting objects

Thickness and elevation: it is necessary to use the visual

and shading toolbar to see the effect

3. Modify tool: offset O

Thickness of partition wall: 200. 240. 120 external wall: 370

Homework: cabinet, TV, microwave oven, computer desk, three bedrooms (ceiling)

Lesson 5:

1. Circle C: several methods for drawing:

? Select the "circle" command under the "drawing" menu

? Click the circle in the drawing toolbar button

? Type (C) commands on the command line

Several forms of drawing circle: center, radius (R)

Center, diameter (D)

Two points (2P) determine a circle

Three points (3P), first, second and third, to determine a circle,

Tangent, tangent, radius (T) tangent to two sides. The input radius can turn the graph into a rounded corner

Tangent, tangent, tangent (A) three objects can draw A circle

2. Regular polygon POL: drawing steps: first, the number of input and set up the center point, inscribed in the circle I (center to the vertices), specialize in C (center to the edge of the distance), specify the radius of the circle.

Arc A: there are 11 ways in the drawing menu that are very useful, such as the door

1) at 3 o 'clock

2) starting point, center, end point

3) starting point, center, Angle

4) starting point, center, length

5) starting point, end point and Angle

6) starting point, end point and direction

7) starting point, end point, radius

8) center, starting point, end point

9) center, starting point, Angle

10) the center, the starting point, the Angle

11) continue (click on the drawing line to continue drawing the arc, only for linear)

4. Revised cloud line

Draw step: arc length A: specified minimum arc length, maximum arc length

Select object: select the revised cloud line and select the object

5. Spline curve SPL: irregular graphics, peak performance, pond, etc

Return the car three times, or enter C close

Modify tools:

1. Copy CO: three methods: menu bar, toolbar, command line

In situ replication: specify a point, enter at the @ value, 0 or move directly

Repeat replication M: numerous, right click stop

2. Mirror MI: horizontal and vertical (select the object, specify the first point, and specify the second point, whether the original object is deleted: it is Y or enter, no N)

Homework: table lamps, street lamps, trees

Lesson 6:

Drawing toolbar:

Point point: assist

Format menu -- dot style:

Drawing toolbar - point S: only one dot at a time

Multi-point P: can draw multiple points at one time, left click add, right click to stop

D: after selecting the object, set the number

The distance is equal to the length of the line segment

4. Create blocks: name -- select objects -- pick up points

5. Insert block: it can only be changed in one file, it can only be used in the current document. If you want to exchange it in two files, you must use block command.

6. Write block W (wblock) : you can save the current diagram source as one file and open it from another file. Target: save the path

7. External reference (insert menu) : used to copy a lot of the same graphics, and to modify, click on the external

reference According to all the changes, steps: modify the menu editor - in - external reference and mass reference - choose to modify an object (a dialog box appears), modify the object - points dialog "to save changes to the reference to", then all the original documents will be modified.

8. Raster image (insert menu) : also known as a bitmap, is composed of many pixels, enlarge or rotation distortion, advantage is that can the performance of the real image, format (tif, BMP, JPG) is commonly used as adornment,

You can also refer to the construction drawing, and select a corner: equal to scale

9. Ellipse ellipse: specify one endpoint, and then specify another endpoint length, rotation Angle R

10. Elliptic arc: specify an endpoint first, then specify another endpoint length (rotation Angle R), specify the starting Angle of the arc, and then specify the termination Angle.

Page Settings: the black workspace for CAD is A3

A2 = 420 x 594 mm

A3 = 420 x 297 mm

A4 = 210 x 297 mm

16 k = 210 x 285 mm

Format - the graph limit (set the grid size) unit MM, enter the car, enter the paper size

Homework: building a room model (ceiling, elevation, profile)

Lesson 7:

One, the pattern fills H: can fill the figure that closes or does not seal, an explanation \ indicates effect, is an auxiliary tool

After entering H on the command line, enter the dialog box with the border pattern fill dialog box:

Pattern filling: picking points (usually filled with closed graphics), picking objects (generally used for unenclosed graphics), selecting patterns, adjusting angles, ratios, previews, and determination

Advanced: ordinary M (with odd Numbers), external O (filled with graphics outside), and ignore G (all filled)

Gradual change: gradual transition, two or more transition colors, rotation of angles

Picking points: closed graphics

Select object: generally used for unclosed graphics

Right-click to pick up or press ESC to return to the dialog box or right-click to fill

Ii. Surface domain; The graphics that contain 3d objects will be in the surface area, and the graph that is composed of lines or independent lines cannot be stretched into three-dimensional objects and must be transformed into a surface area to be stretched

Adjust the drawing (view, shading, solid toolbar) to color the drawing, and convert it to a 3d view to see the effect.

3. Text: (it is divided into editing and text)

1. Multi-line text: the input text is a whole

2. Change the text size: select the text, right click "edit multi-line text" to change the word size, enter the font size

3. Right click after the selected text -- "edit multi-line text" right click -- text position (to positive) --

Positive and negative (% % p)

Degree (% % d)

Diameter (% % c)

Other (font web, select -- copy -- close -- paste -- name -

- determine)

Single line text: you can also enter multiple lines of text, but typing each line is an independent object

Drawing toolbars -- words -- single lines -- starting, writing height, Angle

Question mark (?) Font is incorrect or no font name, formatting - text style - font name (choosing the right font, with @ not available)

Lesson 8:

Modify toolbar:

I. array: duplicate replication

Two ways: 1. Rectangular array: the number of Spaces, rows, and columns of the selected object (object to array),

Row offset \ column offset (spacing), array Angle

2. Ring array: select the object, pick up center point, total number of projects (number), Angle

2. Move M: enter M and enter the moving value directly

Rotation: specify base point, enter rotation Angle

4. Zoom SC: select the object, enter the car, and enter the

zoom scale

5. Stretch: to scale the individual edges of an object and stretch only half of the objects. If the whole selection is only to move objects, it makes no sense

Trim TR: select the object, enter the car, and click the figure to be trimmed

Seven, extension: extension line, select the object, press enter, click to extended graphics first, then click the extension line of the input E (edge) enter, extend \ don't stretch, make the line becomes infinite, can intersect

8. Chamfer: enter distance D, specify the first chamfering distance, return the car, the second distance, click the first line, and click on the second line

9. Circle Angle: radius R, click on the first object, and click on the second object

10. Interrupt the point: select the place where the object is clicked to disconnect

11. Interrupt: select the object, specify the first breakpoint or enter F to specify the first interrupt point and specify the second interrupt point

12. Decomposition: to decompose a whole, for example, a multiline is a whole, which should be separated by "decomposition" before pruning

Lesson 9:

Layer toolbar, object feature toolbar

1. Layers: create and name layers and specify common features for these layers. By putting objects in their own layers, they can quickly and effectively control the display of objects and make changes to them. (for example, a wall or mark)

Layer feature manager - new: set the name of the layer to be linear, color, line width, etc

Delete: (layer 0 and definition point, current layer, layer that relies on external reference, and layer containing objects)

Open: used to show or hide graphics, while closing can be used to draw off the picture, but not show.

Freeze at all viewports: the current layer cannot be frozen, just control the display or hide on the current layer, and draw a picture.

Lock: can draw, but cannot modify, delete, to lock the current layer of graphics

Color, line (load), line width, printing style, printing

Display details: save status (understanding)

2. Object feature Bylayer: (with the layer) : as with the properties of the current layer, it can be modified.

BYblock (with block)

3. Window zoom: in the standard toolbar, it is divided into:

Window zoom: select area, zoom

Dynamic scaling: click location, select area, right-click to determine

Scaling: input ratio

Center scale: scale with the center, enter numeric values, and the larger the value shrinks

Zoom:

Contract:

Zooming out: also includes the zoom page

* scaling: scale is all graphics

4. Zoom in real time: hold the left button and drag (directly move the mouse scroll)

5. Translation: grip (directly click the middle axis of the mouse)

6. Feature matching: it can be used multiple times to cover the property of one object to another

Lesson 10: mark

1. Dimensions: dimension line, dimension line, size arrow, dimension text

Second, right click on any tool - highlight the toolbar

3. The annotation toolbar includes:

1. Annotation style: click the play dialog box: set to current, new, modified, replaced

Click modify to modify the current annotation style:

Line and arrow: dimension line and arrow: color, line width, excess mark, baseline spacing, hidden dimension line 1 and dimension line 2

Size line: color, line width, exceed dimension line, starting offset, hidden dimension line 1 and dimension line 2

Arrow: first, second (using building markings), lead (using solid mark or standard triangle), arrow size

Center mark: type and size

Text: text appearance: text style, text color, text appearance

Text position: vertical, horizontal, deviation from dimension line

Text alignment: level, alignment with dimension line, ISO standard

Adjustment: adjust the options: the text will always remain in the size boundary, and if it cannot be placed within the boundary of the size, the arrow will be eliminated

Text position: above dimensional line, without lead

Marked feature ratio: use global scale 1

Unit format (decimal) precision (default)

Unit:

Tolerance:

Linear tagging: horizontal and vertical

3. Alignment labeling:

Coordinates: specify the origin of the coordinates

5. Radius labeling:

6. Diameter tagging:

7. Angle labeling:

8. Quick note:

9. Baseline label: must be marked before use

10. Continuous labeling: must be marked before use

Quick lead: set S, lead points, right click on text

Tolerance: symbols in mechanical drawing,

13. Center marks

14. The editor note: there are marked in advance, can modify the label (N: new can modify the text R: rotate the text O (tilt is marked) default refers to the default text direction but cannot place marked tilt.

15. Edit the text: change the position of the marked text

16. Update: check mark (for less)

Lesson 11: visual toolbars

Display: four equal: set up three dimensions, modify view to: view, main view, left view, southeast, etc

Single viewport:

View toolbar: divided into vertical view, bottom view, left and right views, main view, back view, axonometric views such as southwest and southeast axonometric views, such as the northeast axonometric views, such as the northwest axonometric views

shader

Two-dimensional wire frame:

Three-dimensional frame:

Blanking:

Plane coloring:

Body color:

Color with border plane:

Color with bezel:

Lesson 12:

Solid toolbar

Rectangle:

The ball:

The cylinder:

Cone:

Wedge:

Ring:

Stretch:

Rotate: you can use the REVOLVE command for a closed object (such as multi-segment lines, polygons, rectangles, circles, ellipses, and surface domains). You can't use the REVOLVE command for the following objects: a three-dimensional object, an object contained in a block, a multi-segment line with a cross or a cross section, or a non-closed multi-segment line.

Cutting:

Cut: cut out a plane

Interference: create an intersection

Lesson 13:

Entity edit toolbar

And set:

Difference set:

Intersection:

Stretch surface: stretch the surface of the selected three-dimensional object to a specified height or stretch along a path. Multiple surfaces can be selected at one time.

Moving face: moves the surface of the selected three-dimensional object object along the specified height or distance. Multiple surfaces can be selected at one time

Offset: evenly offset the surface by the specified distance or by the specified point. The positive value decreases the size or volume of the entity by increasing the size or volume of the entity.

Delete face: remove the previously selected edge from the selection set

Rotating plane: rotating a surface, multiple surfaces, or parts of an entity around the specified axis. Rotation Angle: from the current position, causes the object to rotate the specified Angle to the selected axis.

Tilt: tilt the surface at an Angle. The rotation direction of the tilt Angle depends on the sequence of the selected points and the second point (along the selected vector).

Copy:

Color:

Copy:

Color:

Embossing: the text cannot be pressed, parallel to the base of the object, and the object being pressed must intersect with one or more of the selected objects. The stamping operation is limited to the following objects: arcs, circles, lines, two-dimensional and three-dimensional multi-segment lines, ellipses, spline curves, surface domains, bodies and three-dimensional entities.

Clearance: the removal of a stamped object

Segmentation (objects used for Boolean operation)

Draw shell: select three - dimensional object right - click to determine, then input the value of the extraction shell, using the difference - set Boolean operation to see the shell

Lesson 14:

3d dynamic viewer

3d translation:

3d scaling:

3d dynamic observation:

Three-dimensional continuous observation:

Three-dimensional rotation:

Three dimensional adjustment distance:

Lesson 14:

Render toolbar:

Render: RR

Target: viewport

The render window

File: used to save rendering images

Material: the left side is the material name, preview, new material (name), attachment (select object, determination)

Texture library: on the right is the material type, input,

Background: select the image (find the file)

Print: print under the file menu

Printing equipment: select a printer, open the characteristics (revision standard drawing size, select the print paper A4 size, and then click the modify, modify the

page 1 on 1, 1, left or right 1 margin, then determine)

Print setup: select the window, box to print the graph, click full preview, right beat out, then click print offset (center) and then directly determine.

Construction drawing: a space drawing with a solid black line with no perspective and a thick and thin 3d line.

The construction diagram is divided into six categories: the layout of the floor plan 1: x (1:30\1:40\1:50\1:10 0)

Facade layout

Top floor plan

Profile layout

Node layout

Large layout drawings

Note: 1. The layout of the floor plan and the top floor plan have the compass needle, other drawings are not.

2. Node layout has internal structure profile.

Printing output: plain paper, sulphate paper, blueprint (waterproof: based on sulphate paper)

A4 = 210 x 420 x 297 A2, A3 = = 210 594 by 420

Shortcut:

Line (L) line (L) line construction line (XL) xline Ray Ray multiline \ parallel line ML multi-segment line \ edit line (PL)

Rectangular REC round C positive polygon POL arc A spline curve SPL elliptic EL text T

Point point copy CO mirror MI migration patterns H O arrays AR E M rotating RO remove object scale SC tensile S trim TR extends the EX chamfering CHA create block insert block I write block B W external reference grating image BO F fillet surface domain decomposition X interrupt interrupted BR in point DI

Door: long 860mm thick 40mm

The content of the floor plan in the construction drawing: the distinction between the finger, the function room, the size of the room and the marking of the reconstruction

3 D model format: *. Max

Photoshop: PSD with JPG

CAD default format: DWG CAD entity rendering format is BMP

Player: AVI

Dissociation: DWG D earth W hollow brick G manpower

DWP D earth W hollow brick P machinery

The DWG format is inserted into the I insert and JPG is inserted into the raster image

The line of two uneven lines becomes right Angle: F, return, R = 0, enter

So I'm going to use the chamfering CHA, return, R = 0, R2 = 0, click two, enter

The QT wall line - light blue, MC doors and Windows - green, ZX axis - red

Thickness of the partition wall: 200. 240. 120 external wall: 370

Materials: architecture and decoration

Construction: steel, cement, brick, sand

Decoration: glass, wood, paint, light metal, light steel keel, wallpaper, leather

Scale: the original ratio is 1:1

The ratio is 1:51:50...

The magnification ratio is 5:1, 50:1...

The loop art classification is: furniture, home outfit, work

outfit, the regulation

Software; Cad, 3dsmax, photoshop, lightcape