SOEM 024
Computer Aided Design

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Lesson key terms

• Drawing units
• Layers
• Dimensioning-scale
• Blocks
• Attributes
• Hatching
• Layouts
Autocad Units

Drawing units

- The units in drawing area are arbitrary. Usually we consider 1 drawing unit = 1 mm.
- The objects are drawn inside Autocad using 1:1 scale.
- The object is scaled to fit in the standard paper dimensions during the preparation of a layout.
Final layout – Computer Room
Layer 0 – the building
Layer DIMs – dimensions

Insert a new layer for dimensions

- In the command prompt give “la” to start the dimensions dialog.
- Insert a new layers and name it “DIMS”
- Change the colour of the layer to red
- Make it “Current layer”
Layer DIMs – dimensions

Change the dimension settings

• Return to command prompt and type “dimscale”. Change the default value to 100.

• Type ddim to open “Dimension Style Manager” dialog box. Press “Modify” and go to “Primary Units” tab. Set “Precision” to 0.00, “Scale factor:” to 0.001, type “m” into “Suffix” textbox, uncheck “Zero suppression leading” checkbox.

• Reproduce the dimensions as shown in the previous figure.
Layer WINDOWS – Blocks

Definition of block

- Insert a new layer and name it “WINDOWS”, set the colour to be blue and make it “Current layer”.
- Draw somewhere a window (do not dimension it)
Layer WINDOWS – Blocks

Definition of block

• Type “b” to open the “Block Definition” dialog box.
• Name the new block “Window”.
• Pick a point to be the block base point.
• Specify the objects that consist the block and press OK.
• Insert the 4 windows (type insert) shown in the “Final layout”
Layer COMPUTERS – Blocks

Definition of block and hatching

• Insert a new layer and name it “COMPUTERS”, set the colour to be grey and make it “Current layer”.

• Draw a computer.

• Use hatching to draw the keyboard. Type “hatch”, use the pattern “net” and select pattern scale 10.
Layer COMPUTERS – Attributes

Definition of attributes

- Insert 4 attributes (type att) close to computer with tags: CPU, HD, Monitor and RAM. Use font height 50.
- Define a new block named “Computer” that includes the attributes.
Layer COMPUTERS – Attributes

Draw 3 tables and place computers on them

• Draw 3 tables 10×0.9 m with 1.1 m distance between them.

• Put onto the tables 9 computers (use array command with column offset 1000).

• Turn off the display of attributes (attdisp)
Prepare for printing - Layout
The feature of layout provides a distinction between the procedures of representation and plotting. This means that:

• the objects are represented using their original dimensions in the “model space”.
• all plotting related actions (scaling, block title) are handled remotely in the “paper space”.
• many views of the represented object may be prepared without any additional modifications.
Prepare for printing - Layout

Draw title block and set the viewport:

• Select “Layout1”, choose the “PDFCreator” as plotting device.
• Delete the automatically created viewport.
• Select “DIMS” to be the current layer and draw a title block.
• Create a new viewport (type mv).
Prepare for printing - Layout

Define the viewport properties:

- Switch to “model space” (type ms) to set the viewport properties.
- Type z and give 1/100xp that results in plotting with scale of 1:100.
- Pan the draw to place it properly inside the viewport.
- Switch back to “paper space” (type ps).