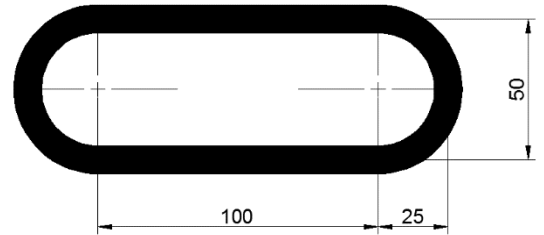# Exercise no 4

New commands: LAYER, DIMENSION (DIM), DIMSTYLE, HATCH, TEXT.

4.1. Drawing polyline – review

Using the polyline (pline, pl) command draw the contour shown on the right. Set line width to 10. Specify appropriate grid and snap.

4.2. Layers

> Attention: On one sheet we use max. 3 line widths, in the ratio 1:2:4, which are used to draw:
> • THIN: dimension lines, reference lines, hatches, simplified windows, doors, centerlines …
> • THICK: contours of visible parts if hatching/reinforcement exists
> • VERY THICK: contours of visible parts if there is NO hatching, reinforcing bars

Typical width combinations are: 0.13; 0.25; 0.50 (or 0.18; 0.35; 0.70).
Dimensions - font 3.5 or 5 mm high (max 7), titles - font increased by 40%.

1. Open the drawing *foundation.dwg*

2. Select everything, change the line width to BYLAYER.

3. Using LAYER command open LAYER PROPERTIES and create new layers as in the table (ALT+N) :

Name	Color	Line	Width
thin	white	continuou	0.18
thick	white	continuou	0.35
dimensions	green	continuou	0.18

4. Select the contours of the foot (without the column) and change the layer to "thick" in the layers panel. Transfer the column projections (with the "cut-off") to the "thin" layer, and the dimension lines to "dimensions". Hide ("bulb") the THIN and THICK layers and after selecting everything with the mouse remove the dimensions. Make all layers visible. Set up current layer to "dimensions".
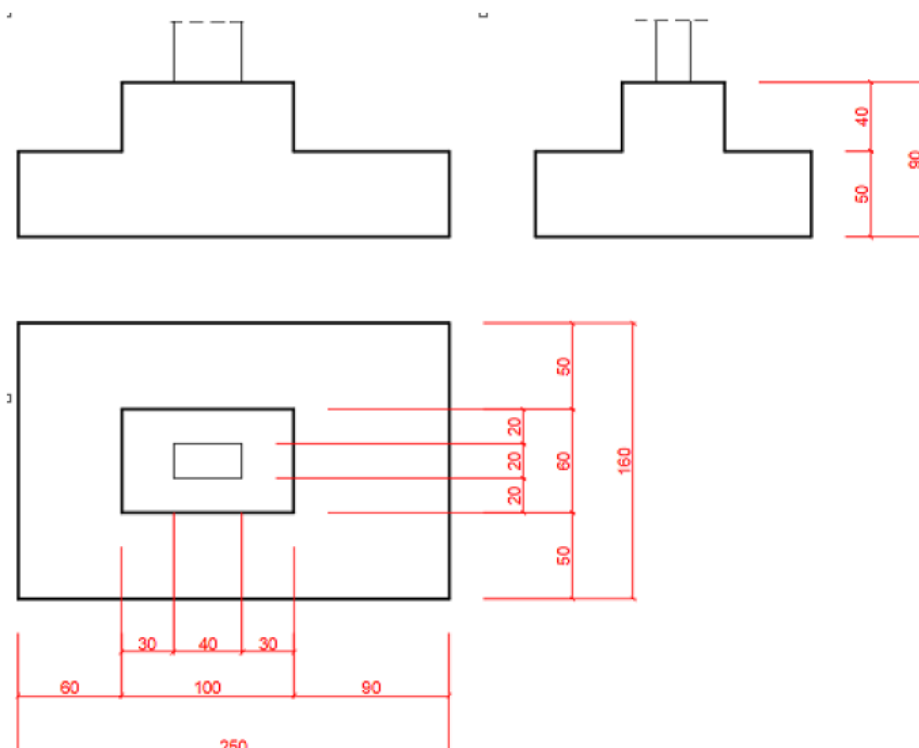
4.3. Dimensioning

The drawing from p.4.2 has been made in millimeters. Add new dimensions in cm using diagonal end-of-dimension marks.

1. Using DIMSTYLE command open window "Dimension Style Manager" and based on ISO-25 style create NEW style called *Construction* and make following changes:
    - Lines: "Extend beyond dim lines" set to 3, "Offset from origin" set to 25;
    - Symbols and Arrows: Arrowheads (all 3) change to "Oblique" or "Architectural tick"
    - Text: Text height set to 7 , and "Offset from dim line" set to 1;
    - Fit: Scale for dimension features set to: Use overall scale of 10
    - Primary Units: Precision set to „0.0", Measurement scale: Scale factor = 0.1 (mm->cm)
2. Draw the dimensions, taking the DIMLINEAR (DIMLIN) dimension first (extreme) and DIMCONTINUE (DIMCONT) as the next (automatically added to the previous one). Check the correctness of the drawing.

4.4. Dimensioning and hatching

Open the drawing *dimensioning.dwg.*

Set the line weight to 0.15. Draw the required axes using center marker with dimensioning style option "line", and dimensioning methods as appropriate (LINEAR, ALIGNED, RADIUS, DIAMETER, ANGULAR, BASELINE, CONTINUE). Hatch the drawing using the ANSI31 hatching pattern. Double click left mouse button on the dimension text to edit it. You may also change the dimension text by editing PROPERTIES, in the TEXT OVERRIDE field.
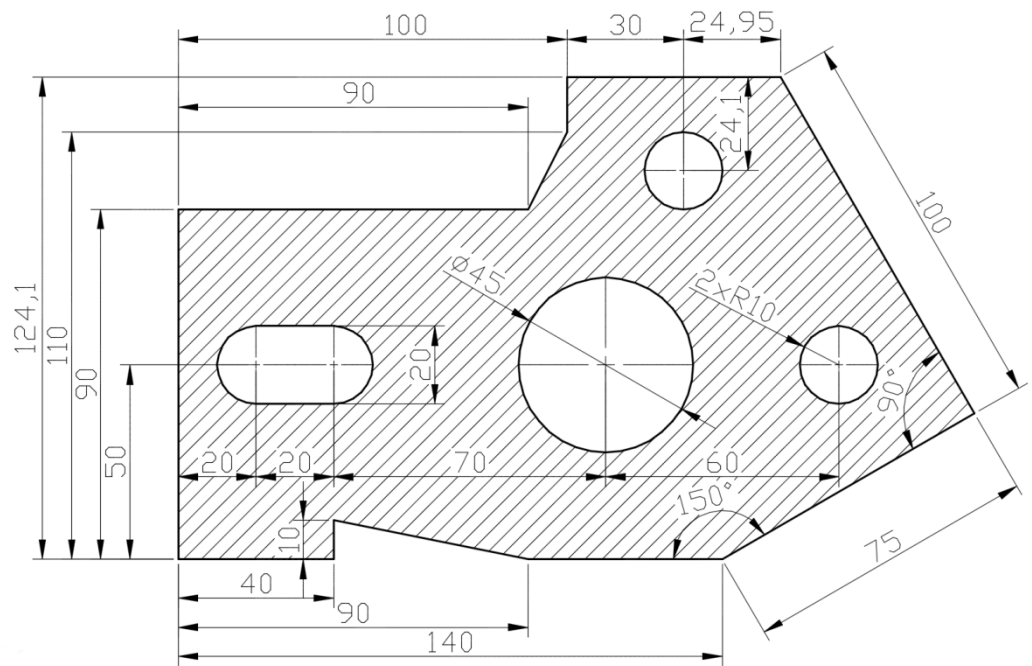
4.5. Inserting text.

Open the drawing *table.dwg*.

Define a new text style, named *table* using the STYLE command. Assign the CALIBRI font, with width factor 0.8. Keep default values of remaining attributes.

Use TEXT command with ML justification attribute (MIDDLE-LEFT POINT OF TEXT), apply the text height of 3 units and 0 degrees rotation angle to enter the text in the first table column. Similarly, apply the text height of 1.5 units and 0 degrees rotation angle to enter the text in the remaining table columns, using TL justification attribute (TOP-LEFT POINT OF TEXT) (the insertion point is shifted down by one unit from the top left corner of a single frame field).

Des.		Date	Signature	Project name		Scale
Draw.		Date	Signature			Drawing no.
				Contents		
Ver.		Date	Signature			File name