

GRZEGORZ  
DZIERZANOWSKI



Lecture 1  
3.10.2022

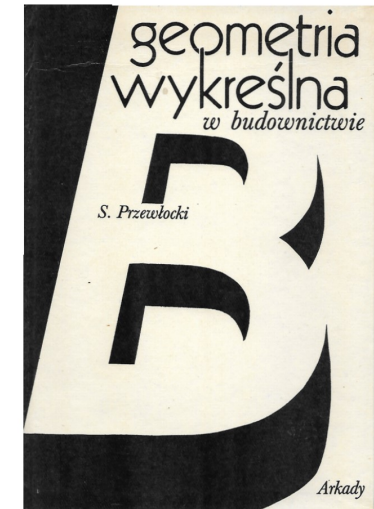
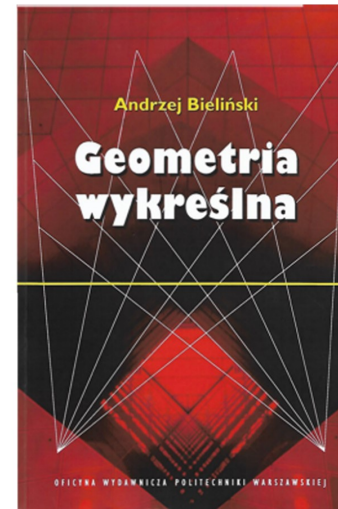
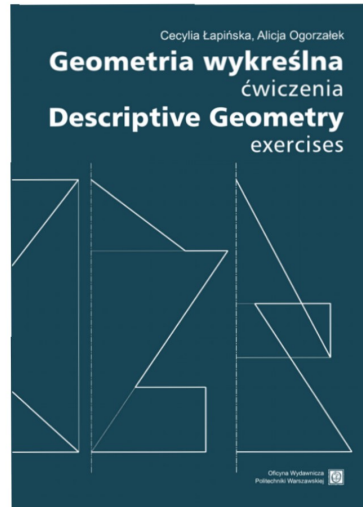
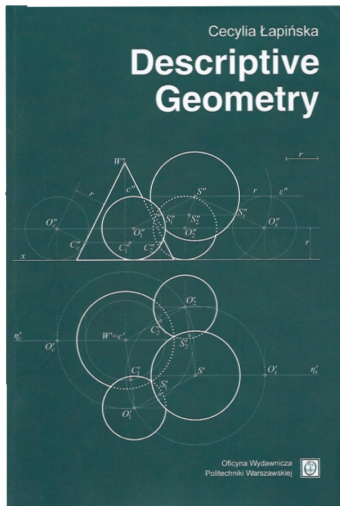
grzegorz.dzierzanowski@pw.edu.pl — see my profile in USOS.

Office hours — Monday 8<sup>00</sup>–8<sup>45</sup> and 15<sup>00</sup>–16<sup>30</sup> in 232d.

geometria.il.pw.edu.pl

Requirements for passing the course — see regulations.

Course materials:



+ pdf files with lectures.

What is the purpose of Descriptive Geometry?

**IN BRIEF:**

DG tells us how to read and write the graphic language.

**MORE PRECISELY:**

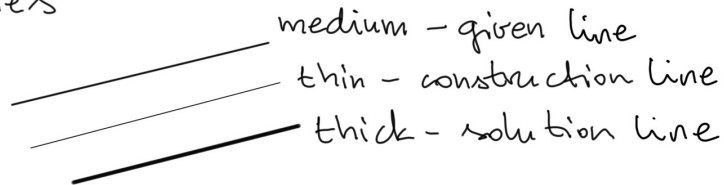
- DG teaches us how to uniquely represent 3D objects by 2D images (projections).
- DG principles are useful in preparing technical and hand drawings as well as reading them.

**VOCABULARY:**

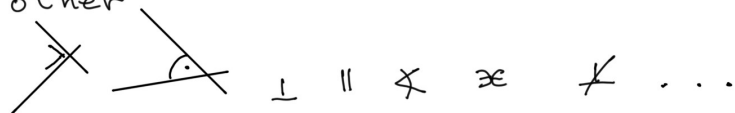
- points

- - given point
- - solution

- lines

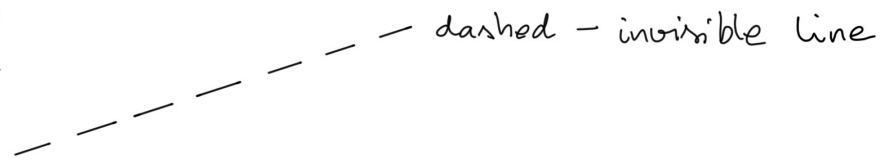


- other

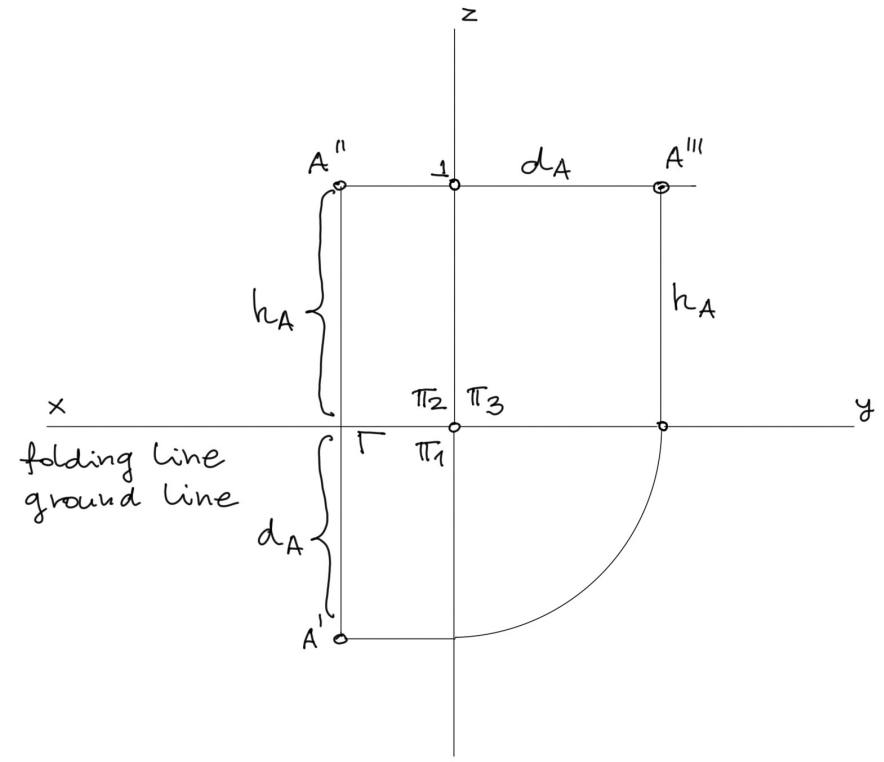
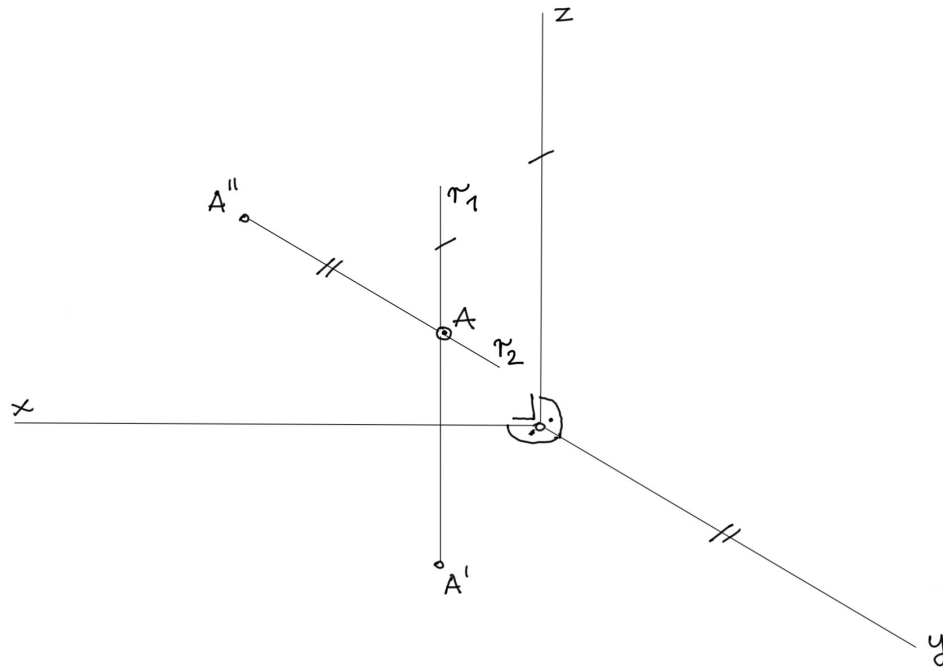


**FOR THIS, WE WILL STUDY:**

- orthogonal (Monge's) projection
- map (topographic, marked) projection
- axonometric projection
- central projection (perspective)



# Monge's projection



$A' \in \pi_1$      $d_A = |AA'''|$  - depth of A

$A'' \in \pi_2$      $h_A = |AA'|$  - height of A

$A''' \in \pi_3$

$r_1(A, A')$  - horizontally projecting ray,  $r_1 \perp \pi_1$

$r_2(A, A'')$  - vertically projecting ray,  $r_2 \perp \pi_2$

$A'-A'' \rightarrow$  reference line