Engineering drawing

Semester I/II

Mechanical Engineering Department
Technical University of Gdańsk

Lecture 1

How to complete our lectures successfully:

- Finish all projects during classes successfully
- Pass a colloquium at the end of semester (during classes)
- Attend classes and lectures regularly

Handbooks:

- Zapis Konstrukcji – Geometria Wykreślna, A. Rigall, J. Sadaj
- Rysunek Techniczny – T. Dobrzański

How to present a three dimension object on a flat surface (plane, paper)?

Projection drawing

A projection is a correct representation of an object on a two dimensional plane.

Four elements of projection:

- the plane of projection
- the line of sight (projecting line)
- the point of sight
- the object

Kinds of projections (the kinds of projections are connected with the relationship between the four elements of projection):

- ***orthographic projection*** – the lines of sight are parallel to each other and perpendicular to the plane of projection.
- ***axonometric projection*** – isometric, dimetric, trimetric (for presentation three-dimensional object onto a plane)
- ***oblique projection*** – the lines of sight are parallel to each other but are oblique to the plane of projection.
- ***perspective projection*** – the lines of sight converge to a point which is at finite distance from the plane of projection.

Planes of projection

The three principal planes of projection (coordinate planes):

- Vertical plane ($¶_1$)
- Horizontal plane ($¶_2$)
- Profile plane ($¶_3$)

(1) Rzutnie.SLDASM

Basic geometrical elements:

- **point**
- **line** - is determined by two points or by one point and a direction.
- **plane** is determined by two intersecting line, two parallel lines, a point and a line, three points

Nomenclature

Each point in space is identified by a capital letter such as A, B, C …

The

The

The

The

Each line in space is identified by a small letter such as a, b, c …

Th

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Th

Each plane in space is identified by greek letter such as α, β, γ …

The vertical projection of plane **α** will be marked **α’**

The horizontal projection of plane **α** will be marked **α’’**

The side projection of plane **α** will be marked **α’’’**

Projection of points

(2) Rzuty punkt.SLDASM

(3) Rzuty punkt.SLDASM

Projection of sections

(4) Rzuty_odcinka.SLDASM

Projection of lines

(5) Rzuty prostej.SLDASM

(6) Rzuty prostej.SLDASM

Projection of planes

(7) Rzutnia płaszczyzna.SLDASM

(8) Rzutnia płaszczyzna.SLDASM

(9) Rzutnia płaszczyzny szczególne położenia.SLDASM

Auxiliary plane

(10) Rzutnia dodatkowa punkt.SLDASM

(11) Rzutnia dodatkowa odcinek.SLDASM