



„CONTEMPORARY APPROACH TO THE DEVELOPMENT OF SPATIAL COMPREHENSION THROUGH AUGMENTED REALITY CONTENT“

**Warsaw University
of Technology**

49. Cutting the cylinder with 8 planes

*Warsaw University of Technology
Civil Engineering Faculty*

<https://liggd.it/spacar/en/graphic-materials>

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SPACAR

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Intellectual Output: O1: Cutting Geometrical Solids with Planes.

Exercise number: 49

Title: Cutting the cylinder with 8 planes

Description:

The cylinder presented below has been cut with 8 planes – α , β , γ , δ , ϵ , ζ , η , θ . Construct horizontal and profile projections (A3 size, scale 1:1), locate the position of planes yourself, give specific angles designed, use paper and pencil or /and computer software.

After drawings answer the questions below:

1. Are the planes γ and ϵ mutually parallel? If not, where do they intersect?
2. What types of sections correspond to each plane: circle, ellipse, rectangle?
3. What is the correlation between the angle of inclination of the plane to the longitudinal axis of the cylinder and the surface area of the section?
4. Sort given planes basing on increasing surface area of the sections that these planes form (consider each section separately, as if they were not limited by the other sections).

Given digital files:

IO1-49-a.pdf: frontal projection of the cylinder and cutting planes

IO1-49-b.obj: 3D model of the given problem solved.

Result:

Frontal, horizontal and profile projections of the cylinder cut with 8 planes (A3 size, scale 1:1)

Answer to questions 1-4.

Prior knowledge:

Basic knowledge related to descriptive geometry, knowledge of geometrical surfaces.

Augmented reality content:

3D model of geometric solid cut with relevant cutting planes.



Erasmus+

PROJECT CONSORTIUM PARTNERS:



P1. Vilnius Builders Training Centre [VSRK]



P2. Riga Technical University [RTU]

Warsaw University
of Technology

P3. Warsaw university of technology [WUT]



P4. Polytechnic university of Valencia [UPV]



P5. Siauliai vocational education and training centre [Siauliai PRC]

SNEAKYBOX

P6. SneakyBox [SBox]



P7. Jugendförderverein Parchim/Lübz e.V. [JFV PCH/LBZ e.V.]



P8. DECROLY, SL [DECROLY]