



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

**Warsaw University
of Technology**

23. Cutting the prism with 3 planes

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<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: 23

Title: Cutting the prism with 3 planes

Description:

The right square prism presented below has been cut with 3 planes – α , β , γ . 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. Consider each cutting plane separately, not limited by other planes:

1. What geometric shapes are formed as sections as the result of the cutting with each plane?
2. How many edges of the prism are intersected by each plane?
3. How many faces of the prism are intersected by each plane?
4. Are the planes β and γ mutually perpendicular?
If not, is the angle between them acute or obtuse?
5. Are the planes α and γ mutually parallel?
If not, where do they intersect – above or below the base of the prism?

Given digital files:

IO1-23-a.pdf: frontal projection of the prism cut with relevant cutting planes, horizontal projection before cutting.

IO1-23-b.obj: 3D model of the given problem solved.

Result:

Frontal, horizontal and profile projections of the prism cut with 3 planes (A3 size, scale 1:1)
Answer to questions 1-5.

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
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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]