



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

**Warsaw University
of Technology**

40. Cutting the pyramid with 5 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: 40

Title: Cutting the pyramid with 5 planes

Description:

The hexagonal pyramid presented below has been cut with 5 planes – α , β , γ , δ , ϵ . 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 pyramid are intersected by each plane?
3. How many faces of the pyramid are intersected by each plane?
4. If the planes α and γ mutually intersect, would it break the pyramid's outline?
5. Are the planes α and δ mutually parallel?
If not, do they intersect below or above the apex of the pyramid?

Given digital files:

IO1-40-a.pdf: frontal projection of the pyramid cut with relevant cutting planes, horizontal projection before cutting.

IO1-40-b.obj: 3D model of the given problem solved.

Result:

Frontal, horizontal and profile projections of the pyramid cut with 5 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
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]