



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

**Warsaw University
of Technology**

12. Cutting the sphere 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: 12

Title: Cutting the sphere with 3 planes

Description:

The sphere 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:

1. What type of section do the planes form?
2. Sort the planes according to the radius of the section they form (from smallest to largest radius).
3. Where does the plane α mutually intersect with the planes β and γ – within the sphere or out of it?
4. Is it possible that the diameter of the sphere's section would be greater than the diameter of the sphere?

Given digital files:

IO1-12-a.pdf: frontal projection of the sphere and cutting planes

IO1-12-b.obj: 3D model of the given problem solved.

Result:

Frontal, horizontal and profile projections of the sphere cut with 3 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:



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P2. Riga Technical University [RTU]

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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]