



Department of Architectural Representation
Descriptive Geometry 2
Year 2018-2019, 2nd (spring) semester

1st Drawing

Tint or pencil, size A2
Deadline for delivery: April 1, 2019

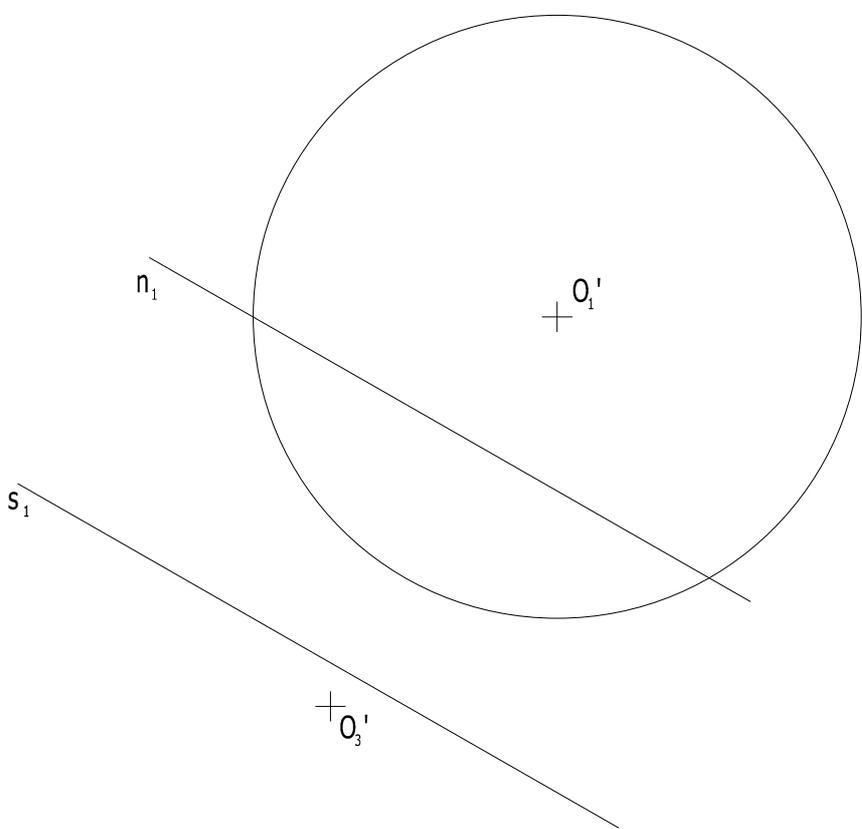
CIRCLE IN PERSPECTIVE; SPHERE, INTERSECTION WITH PLANE, SHADOWS; CONE AND CYLINDER IN PERSPECTIVE; INTERSECTION OF SURFACES; INTERSECTION OF COMPOSITE SURFACE AND PLANE; PARABOLOID OF REVOLUTION, SHADOWS; TORUS, INTERSECTION WITH A PLANE, SHADOWS.

1. Text: "CIRCLE IN PERSPECTIVE". Represent a cube in perspective. Two faces are in the ground plane and in the picture plane respectively. Construct the inscribed circles of the following faces of the cube; in the front face, in the top face, and one in the left or right faces. Show the visibility of the surface as if the circles were holes on the faces of the cube. Construct all shadows at a lighting not parallel to the picture plane.
2. Text: "COMBINED SPHERES" Represent a sphere according to *Figure 1* about the center O_1 . Cut the sphere by a plane passing through the first tracing line n_1 with the inclination angle of 60° inclining outwards. Set a sphere through the circle of intersection such that its center O_2 lies in the first image plane. Cut this sphere by the vertical plane passing through the first tracing line s_1 . Set a third sphere through this circle of intersection with the center O_3 . Show the visibility of the part of the composite surface above the first image plane. Construct all shadows and shades at the direction of lighting O_1O_2 .
3. Text: "CONE AND CILINDERWITH SHADOWS IN PERSPECTIVE" Represent a frustum of a cone standing on the ground plane. The base circle of the cylinder is the top circle of the frustum. Construct the shadows at a lighting parallel to the picture plane, show the visibility.
4. Text: "CONIC SECTIONS" represent a right circular cone standing on the plane $[xy]$ in frontal axonometry. Take a pair of parallel lines parallel
 - a. to the x axis
 - b. to the y axisWhose plane intersects the cone at a hyperbola. Set a plane through the higher line such that it intersects the cone at an ellipse and a plane through the lower one that intersect the cone at a parabola. Show the visibility of the solid after the removal of the smaller parts.
5. Text: "INTERSECTION OF CYLINDERS AND SPHERE". Let a pair of cylinders with horizontal intersecting axes be given such that the elevation of axes is 1 cm, the radius of cylinders is 3 cm. Take a sphere of the radius of 5 cm with the center in the first image plane just below the point of intersection of the axes of the cylinders. Construct the curves of intersection of the sphere and the cylinders. Cut the surfaces by the first image plane, show the visibility of the part above the first image plane.
6. Text: "SURFACE OF REVOLUTION, SHADOWS" In orthogonal axonometry, represent a
 - a) prolate semi-ellipsoid of revolution,
 - b) oblate semi-ellipsoid of revolution,
 - c) paraboloid of revolutionopening up with the axis z . Construct all shadows and shades at a lighting parallel to the plane $[yz]$

January 28, 2019, Budapest.

Dr. Pál Ledneczki
associate professor

$\underline{O_1''}$



$+ O_3'$

1. ábra