

Faculty of Civil Engineering / Građevinarstvo (2017) /

Prerequisites	No conditionality by other exams.
Aims	To acquire basic knowledge of the methods of 3D objects representation on 2D
Lecturer / Teaching assistant	Marija Jevrić
Method	Lectures, exercises, consultations
Week 1, lectures	Introduction: trihedron, Monge's projections; point and line in orthogonal projections
Week 1, exercises	Introduction: trihedron, Monge's projections; point and line in orthogonal projections
Week 2, lectures	Point and line. Special positions of lines. Piercing points of line and line's visibility.
Week 2, exercises	Point and line. Special positions of lines. Piercing points of line and line's visibility.
Week 3, lectures	Plane; point and line in relation to plane; lines in special positions, trihedron of the plane slope; Intersections of planes; the intersection of planes and lines.
Week 3, exercises	Plane; point and line in relation to plane; lines in special positions, trihedron of the plane slope; Intersections of planes; the intersection of planes and lines.
Week 4, lectures	Transformation, rotation, the true length of lines and size of planes. Axonometry: point, line, plane, solids
Week 4, exercises	Transformation, rotation, the true length of lines and size of planes. Axonometry: point, line, plane, solids
Week 5, lectures	Colineation, affinity; regular polyhedra, plane intersections of geometric solids
Week 5, exercises	Colineation, affinity; regular polyhedra, plane intersections of geometric solids
Week 6, lectures	Roofs; types and methods. The true size of the roof plane.
Week 6, exercises	Roofs; types and methods. The true size of the roof plane.
Week 7, lectures	Helix and helicoidal surfaces; straight line-generated surfaces
Week 7, exercises	Helix and helicoidal surfaces; straight line-generated surfaces
Week 8, lectures	1st part of the exam
Week 8, exercises	1st part of the exam
Week 9, lectures	The intersection of prisms and pyramids.
Week 9, exercises	The intersection of prisms and pyramids.
Week 10, lectures	The intersection of cones and cylinders.
Week 10, exercises	The intersection of cones and cylinders.
Week 11, lectures	Topographic projection of terrain; Topographic representation: scale, interval and slope of lines and planes; the intersection of planes; the plane of a given slope
Week 11, exercises	Topographic projection of terrain; Topographic representation: scale, interval and slope of lines and planes; the intersection of planes; the plane of a given slope
Week 12, lectures	Determination of cuts and fills - method of contour lines, planning of horizontal surface on terrain
Week 12, exercises	Determination of cuts and fills - method of contour lines, planning of horizontal surface on terrain
Week 13, lectures	Roads: Determination of cuts and fills - method of contour lines
Week 13, exercises	Roads: Determination of cuts and fills - method of contour lines
Week 14, lectures	Roads: Determination of cuts and fills - method of cross profiles
Week 14, exercises	Roads: Determination of cuts and fills - method of cross profiles
Week 15, lectures	2nd part of the exam
Week 15, exercises	2nd part of the exam
Student obligations	To attend lectures and exercises, do graphic papers and sit their exams.
Consultations	MON, 10 - 12 h THU, 10 - 12 h
Workload	Weekly 6.0 credits x 40/30 = 8 hours Total workload to the course: 6.0 x 30 = 180 hours
Literature	

Examination methods	The forms of knowledge testing and grading: Assessment is carried out continuously throughout the semester and the final exam. If the student shows a minimally sufficient level of knowledge during the semester can earn 51/100 points.
Special remarks	The lectures are organized for a group of up to 100 students, exercises for a group of up to 40 students.
Comment	Additional information can be obtained at the present teaching staff, Head of the study program, and at Vice Dean for academic affairs.
Learning outcomes	After passing this exam, the student will be able to: 1. Represent geometric figures and solids in orthogonal and oblique projection; 2. Interpret the relationships and metric properties of the objects represented in the drawing; 3. Determine the cross-section of a solid, as well as the intersection of two solids; 4. Construct straight-line and helicoidal surfaces; 5. Understand the drawing of terrain in the quoted projection and determine the lines of embankments and cuts for the platform and the road; 6. Solve complex roofs problems and determine the actual size of the roof plane; 7. Know the properties of Plato's solids and the construction of cubes, tetrahedra and octahedra.