Faculty of Civil Engineering / CIVIL ENGINEERING / DESCRIPTIVE GEOMETRY

Course:	DESCRIPTIVE GEOMETRY			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
1702	Mandatory	1	6	3+2+0
Programs	CIVIL ENGINEERING			
Prerequisites	No conditionality by other exams.			
Aims	To acquire basic knowledge of the methods of 3D objects representation on 2D			
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 Platos solids and the construction of cubes, tetrahedra and octahedra.			
Lecturer / Teaching assistant	Marija Jevrić			
Methodology	Lectures, exercises, consultations			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction: trihedron, Monge's projections; point and line in orthogonal projections			
I week exercises	Introduction: trihedron, Monge's projections; point and line in orthogonal projections			
II week lectures	Point and line. Special positions of lines. Piercing points of line and lines visibility.			
II week exercises	Point and line. Special positions of lines. Piercing points of line and lines visibility.			
III week 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.			
III week 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.			
IV week lectures	Transformation, rotation, the true length of lines and size of planes. Axonometry: point, line, plane, solids			
IV week exercises	Transformation, rotation, the true length of lines and size of planes. Axonometry: point, line, plane, solids			
V week lectures	Colineation, affinity; regular polyhedra, plane intersections of geometric solids			
V week exercises	Colineation, affinity; regular polyhedra, plane intersections of geometric solids			
VI week lectures	Roofs; types and methods. The true size of the roof plane.			
VI week exercises	Roofs; types and methods. The true size of the roof plane.			
VII week lectures	Helix and helicoidal surfaces; straight line-generated surfaces			
VII week exercises	Helix and helicoidal surfaces; straight line-generated surfaces			
VIII week lectures	1st part of the exam			
VIII week exercises	1st part of the exam			
IX week lectures	The intersection of prisms and pyramids.			
IX week exercises	The intersection of prisms and pyramids.			
X week lectures	The intersection of cones and cylinders.			
X week exercises	The intersection of cones and cylinders.			
XI week 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			
XI week 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			
XII week lectures	Determination of cuts and fills - method of contour lines, planning of horizontal surface on terrain			

XII week exercises	Determination of cuts and fills - method of contour lines, planning of horizontal surface on terrain
XIII week lectures	Roads: Determination of cuts and fills - method of contour lines
XIII week exercises	Roads: Determination of cuts and fills - method of contour lines
XIV week lectures	Roads: Determination of cuts and fills - method of cross profiles
XIV week exercises	Roads: Determination of cuts and fills - method of cross profiles
XV week lectures	2nd part of the exam
XV week exercises	2nd part of the exam
Student workload	Weekly 5.0 credits x 40/30 = 6 hours 40 min Total workload to the course: 5.0 x 30 = 150 hours

Per week	Per semester
6 credits x 40/30=8 hours and 0 minuts 3 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises **3 hour(s) i 0 minuts** of independent work, including consultations	Classes and final exam: **8 hour(s) i 0 minuts x 16 =128 hour(s) i 0 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **8 hour(s) i 0 minuts x 2 =16 hour(s) i 0 minuts** Total workload for the subject: **6 x 30=180 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **36 hour(s) i 0 minuts** Workload structure: **128 hour(s) i 0 minuts (cources), 16 hour(s) i 0 minuts (preparation), 36 hour(s) i 0 minuts (additional work)**
Student obligations	To attend lectures and exercises, do graphic papers and sit their exams.
Consultations	
Literature	http://people.math.harvard.edu/~knill/history/darstellend/Schaum.pdf
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 50/100 points.
Special remarks	The lectures are organized for a group of up to 100 students
Comment	Additional information can be obtained at the present teaching staff, Head of the study program, and at Vice Dean for academic affairs.

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points