

Faculty of Civil Engineering / CIVIL ENGINEERING / RAILWAY SUPERSTRUCTURES

Course:	RAILWAY SUPERSTRUCTURES			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
6627	Optional	2	4.5	2+ .67+1.33
Programs	CIVIL ENGINEERING			
Prerequisites				
Aims	To acquire basic knowledge of the structural elements of the upper structure railway and rationally examines the implementation of projects.			
Learning outcomes	After passing this exam, the student will be able to: 1. Understands the basic structural elements of the upper structure railway and rationally examines the implementation of projects. 2. In order to project the superstructure of the railway line and checks the load of the superstructure.			
Lecturer / Teaching assistant	Prof. dr Zoran Krakutovski, Mr Katarina Mirković			
Methodology	Lectures, exercises, consultations, building site visits.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	The elements of the superstructure - the rails.			
I week exercises	The elements of the superstructure - the rails.			
II week lectures	Retaining and connecting railway or accessories, railway or other accessories.			
II week exercises	Retaining and connecting railway or accessories, railway or other accessories.			
III week lectures	Thresholds: wood, concrete, steel.			
III week exercises	Thresholds: wood, concrete, steel.			
IV week lectures	The curtain (classification system and production of the covering prism.			
IV week exercises	The curtain (classification system and production of the covering prism.			
V week lectures	The reinforced-concrete structure as rail surface, superstructure for high-speed lines.			
V week exercises	The reinforced-concrete structure as rail surface, superstructure for high-speed lines.			
VI week lectures	Arrangement of the superstructure (track width, camber outer tracks in a curve).			
VI week exercises	Arrangement of the superstructure (track width, camber outer tracks in a curve).			
VII week lectures	Transition curve and transition ramps, guiding rail vehicle.			
VII week exercises	Transition curve and transition ramps, guiding rail vehicle.			
VIII week lectures	Calculation of upper construction - static analysis tracks.			
VIII week exercises	Calculation of upper construction - static analysis tracks.			
IX week lectures	Allowable stresses element tracks.			
IX week exercises	Allowable stresses element tracks.			
X week lectures	Temperature stress of long rail lines.			
X week exercises	Temperature stress of long rail lines.			
XI week lectures	Stability tracks against buckling.			
XI week exercises	Stability tracks against buckling.			
XII week lectures	Special construction gauge - long rail lane.			
XII week exercises	Special construction gauge - long rail lane.			
XIII week lectures	Track on bridges and in tunnels.			
XIII week exercises	Track on bridges and in tunnels.			
XIV week lectures	Dilatation devices. Turnouts. Colloquium.			
XIV week exercises	Dilatation devices. Turnouts. Colloquium.			
XV week lectures	Final exam			

XV week exercises		Final exam				
Student workload		Weekly 4.5 credits x 40/30 = 6 sati Total workload to the course: 4.5x30 = 135 hours				
Per week		Per semester				
4.5 credits x 40/30=6 hours and 0 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 0 excercises 2 hour(s) i 0 minuts of independent work, including consultations		Classes and final exam: 6 hour(s) i 0 minuts x 16 =96 hour(s) i 0 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 6 hour(s) i 0 minuts x 2 =12 hour(s) i 0 minuts Total workload for the subject: 4.5 x 30=135 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) 27 hour(s) i 0 minuts Workload structure: 96 hour(s) i 0 minuts (courses), 12 hour(s) i 0 minuts (preparation), 27 hour(s) i 0 minuts (additional work)				
Student obligations						
Consultations						
Literature		Tomčić – Topalović, Ranković: Gornji stroj željeznica, Građevinski fakultet, Beograd, 1996.				
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 minimal sufficient level of knowledge during the semester can earn 51 points. Maximum studen				
Special remarks		The Lectures is organized for a group of up to 100 students, exercises for a group up to 40 students and laboratory exercises for a group up to 10 students.				
Comment		Additional information can be obtained at the present teaching staff, Head of the study program with 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