

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Infrastructure Planning in Railroad Transport				
Head of course	Hrvoje Kostelić, Lecturer				
Study programme	Specialist professional graduate study Transport				
Status of a course	Obligatory				
Year of study	2.	Semester	III	ECTS credits	5
Teaching plan (L + E + S+ Pr)	2+0+2+0				
Goals of a course					
Getting acquainted with the design, construction and maintenance of the railway line and all its elements (upper structure and railway structures), directions and possibilities of development and advantages of railway traffic over other types of traffic.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
Outcome 2: Apply international, European and national legislation in the implementation of technological and service processes in the field of railroad transport. Outcome 5: Manage and lead railroad transport development activities. Outcome 10: Offer solutions for increasing railroad transport safety. Outcome 12: Manage communication and collaboration processes in different social groups in the field of transport.					
Expected learning outcomes on a level of a course					
<ol style="list-style-type: none"> 1. Describe the structure of the railroad system and the classification of railroads in the Republic of Croatia, as well as legislative and transport-technical regulations related to this area 2. Select the basic elements for the design of a railroad route. 3. Determine the basic elements of the design of the upper course of railroads. 4. Determine the basic elements of railroad structures design. 5. Recommend the basic transport-functional elements and design standards when planning and designing railroad stations and railroad station facilities 6. Research and present a selected topic from the field of railroad transport and railroad infrastructure planning 					
Content of a course					
Railway infrastructure global history. Railway infrastructure development in Croatia. Railway infrastructure construction elements. Rail route design general principles. Railway line and bridge categorization. Railway line equipment. Railway line unloaded and loaded profile. Rail construction elements. Rail upper level elements. Rail upper level planning and maintenance methods. Rail geometry. Express railway lines worldwide and in Croatia. Inclination technique. Roadbed elements. Rail body. Rail body fastening and securing. Embankments, cuttings, and slopes. Drainage. Flood control. Supporting structures. Protective walls. Coatings. Railroad protection facilities. Environment protection facilities. Tunnels. Level crossings and passages. Railroad area. Railroad equipment. Bridges. Drains. Platform roofing. Goods station weighing machines. Railway stations. Railway station structures and facilities.					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
Comments					
Students' obligations					

Fulfil obligations in accordance with the Rules of Study and Rules on the assessment of students.

Grading, evaluation and monitoring of students' work continuously during lectures and exams

Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.

Continuous check-up:

Outcomes	Pre-exam 1	Pre-exam 2	Seminar work	Threshold	Max
Outcome 1	10%			5%	10%
Outcome 2	10%			5%	10%
Outcome 3	20%			10%	20%
Outcome 4		20%		10%	20%
Outcome 5		20%		10%	20%
Outcome 6			20%	10%	20%
Percentage of ECTS	2	2	1		5
Total	40%	40%	20%	50 %	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Oral exam	Max
Outcome 1	5%	5%	10%
Outcome 2	5%	5%	10%
Outcome 3	15%	5%	20%
Outcome 4	10%	10%	20%
Outcome 5	10%	10%	20%
Outcome 6	15%	5%	20%
Percentage of ECTS	3	2	5
Total	60%	40%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

Obligatory literature

1. Kostelić, H.: Infrastruktura željezničkog prometa, Skripta za int. uporabu, Veleučilište Rijeka 2007.
2. Stipetić, A.: Gornji ustroj željezničkog kolosijeka, FPZ Zagreb, 2008.
3. Stipetić, A.: Infrastruktura željezničkog prometa, FPZ Zagreb, 1999.
4. Stipetić, A.: Željeznički kolodvori, FPZ Zagreb, 1995.
5. Stipetić, A.: Kolodvori i kolodvorska postrojenja, FPZ Zagreb, 2002.

Additional literature

1. Prister, G.: Pollak, B.: Željeznice – gornji ustroj i specijalne željeznice, FGZ Zagreb 1988.
2. Marušić, D.: Projektiranje i građenje željezničkih pruga, GF Split, 1994.
3. Zakon o željeznici, NN 93/14.
4. Razvrstavanje željezničkih pruga, NN 3-14.
5. Pravilnik o željezničkoj infrastrukturi NN 127-05
6. Pravilnik o tehničkim uvjetima za sigurnost željezničkog prometa kojima moraju udovoljavati željezničke pruge NN 128/08
7. Pravilnik o tehničkim uvjetima za sigurnost željezničkoga prometa kojima moraju udovoljavati industrijski i drugi željeznički kolosijeci koji nisu javno dobro u općoj uporabi (NN 99-11)
8. Pravilnik o uvjetima za određivanje križanja željezničke pruge i drugih prometnica i za svođenje i određivanje zajedničkoga mjesta i načina križanja željezničke pruge i ceste (NN123-12)
9. Način osiguravanja prometa na željezničko-cestovnim prijelazima i pješačkim prijelazima preko pruge (NN 121-09)

