

Study program: Mechanical engineering			
Type and level of studies: Master studies			
Course unit: Testing of Railway Vehicles			
Teacher in charge: prof. dr. Dragan Petrović			
Language of instruction: English			
ECTS: 6			
Prerequisites: None			
Semester: Autumn			
Course unit objective: Gaining of higher level of knowledge in the field of testing of railway vehicles and their structural parts.			
Learning outcomes of the course unit: Training for engineering work in the field of testing of railway vehicles and their structural parts.			
Course unit contents			
<i>Theoretical classes</i>			
Introduction to the testing of railway vehicles. International standards and regulations in the design and testing of railway vehicles. Criteria for assessing the quality of railway vehicles. Analysis of problem and definition of the testing program. Preparation and organization of testing. Performance of testing. Measuring equipment for testing of railway vehicles. The design of the converters for testing of railway vehicles and their structural parts. The types of testing of railway vehicles. Static testing. Dynamic testing. Testing of quiet running and running safety. Fatigue tests and determination of lifetime. Exploitation testing. Analysis and processing of test results. Final report. Modern techniques for monitoring the condition of railway vehicles and their major parts.			
<i>Practical classes</i>			
Examples of measuring equipment and transducers for testing of railway vehicles and their main parts. Examples of testing of rail vehicles. Laboratory and practical work on concrete examples. Seminar on the given topic of specific testing of railway vehicles or its parts (assembly, subassembly or component).			
Literature			
UIC, EN and TSI regulations.			
E. Andersson, M. Berg, S. Stichel, Rail Vehicle Dynamics, Railway Group KTH, Stockholm, 2007.			
S.D. Iwnicki, Handbook of Railway Vehicle Dynamics, CRC Press, Taylor & Francis Group, Boca Raton, 2006.			
Number of active teaching hours			Other classes
Lectures: 2	Practice: 1	Other forms of classes: 2	Independent work:
Teaching methods			
Theoretical classes in the form of lectures. Practical classes. Auditory and laboratory exercises. Seminar on the given topic.			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures	5	oral examination	50
practical classes/tests	10	written examination	
Seminars/homework	35	
Project			
Other			
Grading system			
Grade	No. of points	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	Less than 50	Failing	