

Study program / course: <b>Mechanical Engineering</b>			
Type and level of study: <b>Master academic studies</b>			
Course: <b>Testing of motor vehicles and engines II</b>			
Lecturers: <b>Rajko R. Radonjic, Ph.D., full professor</b>			
Status of course: <b>Elective, joint for module M<sub>3</sub> and module M<sub>8</sub>, III semester</b>			
Number of ECTS: <b>6</b>			
Precondition: <b>none</b>			
<b>The objective of course</b>			
The basic objective is to educate the student in the area of advanced techniques of design, selection and making use of measuring systems for vehicle testing, from the aspect of operational loads, performances, reliability and safety.			
<b>The outcome of course</b>			
Student should learn to analyze the problem from the area of testing of motor vehicles and engines from the aspect of measuring system, to design corresponding measuring installation, to analyze experimental data and to present the experimental results.			
<b>Syllabus</b>			
<b>Theoretical study</b>			
Vehicle testing – types, methodologies, measurands and technical regulations. Basic design of measurement systems for vehicle testing. Measurement signals, sensors, computer based data acquisition – CAT systems. Analysis of measurement results, influences on measurement results, influence of human factor, modern software for experimental data analysis. Experimental installations for testing of operational loads, performances, reliability. Identification of vehicle's influence on environment – vibration comfort parameters, noise, exhaust emission gases, road damage. Methods for monitoring the traffic flow. Testing the indices of active and passive vehicle safety.			
<b>Practical Studies:</b>			
Verbal and laboratory exercises: Practical work with measurement equipment – use of sensors, forming of experimental installations, data acquisition, analysis and processing of recorded data. Demonstration of modern experimental installations and installations from the laboratory for motor vehicles assigned for testing of operational loads, performances, reliability and vehicle safety and its influence on environment. Within the framework of study research, the students will be qualified for basic research in the area of this course.			
<b>Recommended reading</b>			
<b>Obligatory</b>			
1. Todorovic, J.: "Testing of motor vehicles", (in Serbian), FME Belgrade, 1995			
2. Zivkovic, M., Trifunovic, R.: "Testing of IC engine", (in Serbian), FME Belgrade, 1987			
3. Radonjic, R., Miloradovic, D.: "Testing of motor vehicles and engines II", script (in preparation, in Serbian), FME Kragujevac, 2008			
<b>Additional</b>			
1. Radonjic, R.: "Identification of motor vehicle's dynamic characteristics", (in Serbian), FME Kragujevac, 1995			
The number of hours of active teaching:			Other classes:
Theory: <b>3</b>	Practical classes: <b>1.4</b>	Other forms of teaching: <b>0.6</b>	Research study: <b>0</b>
			<b>1</b>
<b>Methods of teaching</b>			
Предавања, аудиторне и лабораторијске вежбе			
<b>Evaluation of knowledge</b>			
<b>Pre-final exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
Activities during the classes:	<b>10</b>	written or verbal	<b>30</b>
Practical classes:	/		
Colloquiums(s) :	<b>40 (2x20)</b>		
Seminar(s) :	<b>20</b>		