

## Specification for the book of courses

<b>Study program</b>		Electrical Engineering and Computer Science		
<b>Module</b>		Common		
<b>Type and level of studies</b>		Doctoral studies		
<b>The name of the course</b>		Sensors and Measurement Transducers		
<b>Lecturer (for lectures)</b>		Denić B. Dragan, Radenković N. Dragan		
<b>Lecturer/associate (for exercises)</b>				
<b>Lecturer/associate (for OFE)</b>				
<b>Number of ECTS</b>	10	<b>Course status (obligatory/elective)</b>	Elective	
<b>Prerequisites</b>				
<b>Course objectives</b>				
Acquisition of basic knowledge in the field of sensors and transducers and different types of their applications. The goal is also to familiarize students with the principles of measurement of non-electrical quantities and sensor systems used in modern measurement systems.				
<b>Course outcomes</b>				
Student's ability to understand basic principles of work of a large number of sensors and transducers. Ability to select the sensor and measuring method in individual practical examples.				
<b>Course outline</b>				
<b>Theoretical teaching</b>				
Basic block diagram of transducers. Basic definitions. Sensor as the basic element of the transducers. Information-energy parameters of transducers. Trends in the development of sensors and transducers. Active and passive transducers. Analog and digital transducers. Integrated, intelligent sensors and measurement modules. Transducers of temperature, force, pressure, flow, level, displacement, humidity. Analog electronic circuits for sensor connections.				
<b>Practical teaching (exercises, OFE, study and research)</b>				
<b>Textbooks/references</b>				
1	D. Stanković, „Physical-technical measurements - sensors“, University of Belgrade, 1997 (in Serbian).			
2	J.Webster, „The measurement, instrumentation, and sensors handbook“, CRC Press, 1999.			
3	W. Nawrocki, „Measurement systems and sensors“, Artech House, 2005.			
4	J. Fraden, „Handbook of modern sensors, physics, designs and applications“, Springer, 2004.			
5	I. Sinclair, „Sensors and transducers“, third edition, Newnes, 2001.			
<b>Number of classes of active education per week during semester/trimester/year</b>				
<b>Lectures</b>	<b>Exercises</b>	<b>OFE</b>	<b>Study and research work</b>	<b>Other classes</b>
3	0	0	0	0
<b>Teaching methods</b>				
Lectures and laboratory work within the framework of research work. The first steps in scientific research are expected in certain areas within defined project tasks; students will be involved in the process of writing and presenting scientific papers.				
<b>Grade (maximum number of points 100)</b>				
<b>Pre-exam duties</b>		<b>Points</b>	<b>Final exam</b>	<b>Points</b>
<b>Activity during lectures</b>			<b>Written exam</b>	
<b>Exercises</b>			<b>Oral exam</b>	50
<b>Colloquia</b>				
<b>Projects</b>		50		