

Study program: Electrical and Computing Engineering			
Type and level of studies: Doctoral studies (third level of studies)			
Course unit: Sensorics			
Teacher in charge : Nebojša Mitrović			
Language of instruction: English			
ECTS: 15			
Prerequisites: -			
Semester: Summer			
Course unit objective			
Preparing for research work in the field of sensors			
Learning outcomes of Course unit			
Possibilities for measurements characteristics of different types of sensors (impedance, inductivity, capacitivity, Q-factor) up to MHz or GHz and selection of sensors with optimal sensitivity.			
Course unit contents			
<i>Theoretical classes</i>			
Technical specification of sensors and their applications. Characterization and testing of sensors components (impedance, inductivity, capacitivity, Q-factor). Practical measurements on RLC-meter up to very high frequencies where is appearance of specific effects. Development of magnetoimpedance sensor, magnetoresistance sensors. Analysis, explanation and presentation of measuring results.			
Analysis of scientific papers pertaining to sensors.			
<i>Practical classes</i>			
Candidates perform their research work on experiment preparation and performing sensors element. Analysis of experimental results and writing scientific paper, as a possible theme for doctoral dissertation.			
Literature			
[1] J. Fraden, <i>Handbook of Modern Sensors, Physics, Design and Application</i> , AIP Press 2004.			
[2] X. P.V. Maldague, <i>Theory and Practice of Infrared Tehnology for Nondestructive Testing</i> , John Wiley & Sons 2001			
[3] K. H. J. Buschow, <i>Handbook of Magnetic Materials</i> , Vol. 15, Elsevier, B.V. Amsterdam, 2003.			
[4] Science journals in the field of sensors: <i>Sensors and Actuators A: Physical, Sensors and Materials, Sensors</i> .			
Number of active teaching hours			
Lectures: 3	Practice: 5	Other forms of classes	Independent work: 2
			Other classes
Teaching methods Lessons, consultations, study and research work			
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	15	written examination	
Seminars/homework	-	
Project	30		
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	

Commented [L1]: ?