

Specification for the book of courses

Study program	Control Systems			
Module	Computer Control Systems and Measurement Techniques			
Type and level of studies	Master studies			
The name of the course	Sensors and Transducers in Control and Robotics			
Lecturer (for lectures)	Dinčić R. Milan, Radenković N. Dragan			
Lecturer/associate (for exercises)	Pešić T. Miroljub, Jocić V. Aleksandar			
Lecturer/associate (for OFE)	Pešić T. Miroljub, Jocić V. Aleksandar			
Number of ECTS	5	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Introduction of students with types and significance of sensors, as well as with the techniques for realization of sensor systems in control and robotics.			
Course outcomes	Students will obtain theoretical and practical knowledge about robotic sensors (about types, principles of work, technology of production and significance of sensors), as well as about practical realization of sensor systems in robotics.			
Course outline				
Theoretical teaching	Importance and types of sensors in control and robotics. Trends in the development of sensors in robotics. Sensor technologies. Proximity sensors. Sensors of force and moment. Tactile sensors. Sensors of robotic vision. Sensors of ultrasonic vision. Navigation sensors and gyroscopes. Multisensor robotic systems. Integration of the sensors into the control system.			
Practical teaching (exercises, OFE, study and research)	Practice, laboratory exercises, realization of seminar and project tasks for the purpose of studying and practical implementation of sensor systems in robotics.			
Textbooks/references				
1	M. Popović, "Sensors in robotics", 2006 (in Serbian).			
2	D. Stanković, "Physical-technical measurements, sensors", University of Belgrade, 1997 (in Serbian).			
3	S. Ruocco, "Robot sensors and transducers", Open University Press, 1987.			
4	H.R. Everett, "Sensors for Mobile Robots-Theory and Application", A K Peters, Ltd., 1995.			
5	J. G. Webster, "Measurement, Instrumentation and Sensors Handbook", CRC Press, 2014.			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	1	1		
Teaching methods	Lectures, practice, laboratory exercises, realization of seminar tasks and projects, consultations.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	5	Written exam	25	
Exercises	20	Oral exam	25	
Colloquia	25			
Projects				