Specification for the book of courses

Study program	Electrical Engineering and Computer Science		
Module	Control Systems		
Type and level of studies	Undergraduate Academic Studies		
The name of the course	Measurements in Ecology		
Lecturer (for lectures)	Jovanović R. Jelena		
Lecturer/associate (for exercises)	Đorđević-Kozarov R. Jelena, Stojković S. Ivana		
Lecturer/associate (for OFE)	Đorđević-Kozarov R. Jelena		
Number of ECTS	5	**Course status (obligatory/elective)**	Elective
Prerequisites			
Course objectives	Acquiring knowledge in the field of measurement in ecology, measurement methods and measurement instrumentation.		
Course outcomes	Ability to use measuring systems designed for measurements in ecology and for environmental monitoring.		
Course outline			
Theoretical teaching	Quality system for working and living environment. Ecological systems. Sources of harmfulness in the living, working and industrial environment. Modern transducers and sensors used in ecology. Measurement of physical and chemical parameters of water, air and soil. Measurement systems for monitoring and collecting data from the living environment. Measurement of radiation and electromagnetic pollution. Noise and vibration. Measurement of microclimate parameters. Measurement of meteorological parameters. Meteorological measuring and information systems. Wireless sensor networks in ecology. Internet of things and its application in environmental monitoring.		
Practical teaching (exercises, OFE, study and research	Demonstration of the working principle of measurement systems, based on the Arduino platform, through various examples of environmental parameters measurement.		
Textbooks/references			
1	D. Stanković, Physical and technical measurements-sensors (in Serbian), University of Belgrade, 1997.		
2	J. Webster, The measurement, instrumentation and sensor handbook, CRC Press, 1999.		
3	J. Artiola, I. Pepper, M. Brusseau, Environmental Monitoring and Characterization, ELSEVIER Academic Press, 2004.		
4			
5			

Number of classes of active education per week during semester/trimester/year				
Lectures	**Exercises**	**OFE**	**Study and research work**	**Other classes**
2	2	1	0	0
Teaching methods	Theoretical and practical, and seminar paper. Practical teaching is of demonstrational type.			

Grade (maximum number of points 100)			
Pre-exam duties	**Points**	**Final exam**	**Points**
Activity during lectures	5	**Written exam**	20
Exercises	10	**Oral exam**	15
Colloquia	40		
Projects	10		