Specification for the book of courses

Study program	Electrical Engineering and Computer Science		
Module	Electron Devices and Microsystems		
Type and level of studies	Undergraduate Academic Studies		
The name of the course	Microsystem Technologies		
Lecturer (for lectures)	Paunović V. Vesna, Pešić M. Biljana		
Lecturer/associate (for exercises)	Marjanović B. Miloš, Paunović V. Vesna		
Lecturer/associate (for OFE)	Marjanović B. Miloš		
Number of ECTS	6	**Course status (obligatory/elective)**	Obligatory
Prerequisites			
Course objectives	Learning basic knowledge of materials for microsystems, and the most important technological processes in various technologies for microsystems realization, as well as the assembly and microsystems integration.		
Course outcomes	Theoretical knowledge about the technologies for microsystems realization. Numerical solving of problems in the field of technological processes. Practical simulation of the semiconductor substrates production, oxidation, diffusion, ion implantation, lithography, etching, metallization		
Course outline			
Theoretical teaching	Definitions and classification of microsystems. Materials for microsystems. Microelectronic technologies: films growth and deposition, doping, litography, etching, Ion implantation, oxidation, diffusion. Bulk micromachining technology: technological processes, structures, applications. Surface micromachining technology: technological processes, structures, applications, LIGA technologies: technological processes, applications. Assembly and microsystems integration		
Practical teaching (exercises, OFE, study and research	Practical exercises showing numerical problem solving in the technological processes. Exercises are performed on a computer using the simulator of technological processes. Preparation of semiconductor substrates, epitaxial growth, oxidation, diffusion, ion implantation, lithography, etching, metallization, CMOS technological array		
Textbooks/references			
1	G.S.May, C.J. Spanos,Fundamentals of Semiconductormanufacturing and process control, John Wiley, 2006		
2	G.Gerlach, W Dotzel,D.Muller, Introdution to Microcystem technology, John Wiley, 2008		
3	V. Barzdenas, R. Navickas, Microtechnologies, a laboratory manual, Vilnius Technika, 2012		
4	L. A. Francis, K. Iniewski, Novel Advances in Microsystems Technologies and Their Applications, CRC Press, 2017		
5	V. Vardan, K. Vinoy and S. Gopalakrishnan, Smart Material Systems and MEMS, John Wiley, 2006		

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	Lectures, practice work, 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	20		
Projects	5		