

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Common		
Type and level of studies		Doctoral studies		
The name of the course		Sound Generation and Perception		
Lecturer (for lectures)		Ćirić G. Dejan		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Mastering knowledge about sound, familiarizing with the newest achievements and research in sound generating, transmission, modeling and processing, as well as sound perception.			
Course outcomes	Theoretical knowledge. Solving practical problems: acoustical design, noise (sound) protection, system design, measurements, sound acquisition. Proper use of equipment. Application of knowledge in real situations such as industrial applications.			
Course outline				
Theoretical teaching	Generating speech and music signals, as well as measurement acoustical signals. Sound transmission indoors and outdoors. Sound perception. Sound acquisition (acoustical sensors). Design and analysis of modern devices for sound recording and reproduction. Acoustics of enclosed spaces. Sound reinforcement. Noise as unwanted sound and adequate protection. Creating sound effects with predefined characteristics. Standards and norms of acoustic quality. Acoustic measurement techniques. The application of technology based on sound in the industry.			
Practical teaching (exercises, OFE, study and research)	Problem solving through students' reasearch projects (Sound generating (speech and music signals). Sound sources. Sound transmission. Sound perception (formation of the sound image). Acquisition of sound (analog and digital sensors, spatial dimension). Characteristics of modern devices for sound recording and sound reproduction. Acoustical characteristics of enclosed spaces. Characteristics of speech and music. Acoustical measurement techniques).			
Textbooks/references				
1	T. D. Rossing: Springer handbook of acoustics, Springer, New York, 2007.			
2	L. E. Kinsler, A. R. Frey, A. B. Coppens, J. V. Sanders: Fundamentals of acoustics, 4th edition, John Wiley & Sons, New York, 2000.			
3	H. Kuttruff: Acoustics – an introduction, Taylor & Francis, London, 2007.			
4	D. R. Raichel: The science and applications of acoustics, 2nd edition, Springer, New York, 2006.			
5	J. Blauert: Communication acoustics, Springer, Berlin, 2005.			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
3	0	0	0	0
Teaching methods	Lectures. Consultations. Student research projects.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures		Written exam		
Exercises	30	Oral exam	40	
Colloquia				
Projects	30			