

Study program: Communication technologies			
Course title: Electro acoustics			
Professor/assistant: Zoran N. Milivojević, Ph. D.			
Type of course: elective			
ECTS credits: 5			
Pre-requisites: No			
Aims of the course: This course studies acoustic signals, specifically, audio and speech. This course involves electro-acoustic transducers, microphones, loudspeaker boxes and audio crossover.			
Learning outcomes: The student is qualified to be independent for servicing and maintenance of electro-acoustic systems, and projecting sound combinations (sound boxes). Also, the student will be able to design, implement and maintain the sound system.			
Syllabus			
<u>Theoretical part</u> Physical acoustics. Sound generating. Sound propagation. Sound pressure. Wavelength. Sound Intensity. Room acoustics. Sound absorption. Reverberation. Reverberation measuring methods. Measuring Room Impulse Responses. Physiological acoustics. Psychoacoustics and perception. Intelligibility. Analogies. Electro-mechanical-acoustic analogy. Acoustical capacity. Acoustical inductivity. Acoustical resistance. Equivalent schemes of acoustic and mechanical systems. Electro-acoustic transducers. Microphones. Microphone characteristics. Electrodynamical microphones. Capacitive microphones. Loudspeaker box. Bass-reflex. Loudspeaker box measurements. Audio crossover.			
<u>Practical part</u> Computer exercises. Designing loudspeaker boxes and audio crossover. The sound system project.			
Literature 1. Pravica, P., <i>Elektroakustika</i> , Visoka škola elektrotehnike i računarstva, Beograd, 2011. 2. Kurtović, H., <i>Osnovi tehničke akustike</i> , Naučna knjiga, Beograd, 1982. 3. Rossing, T., <i>Springer Handbook of Acoustics</i> , Springer Science, New York, 2007.			
Number of active classes 60			Other forms of teaching:
Lectures: 30	Practical classes: 30	Research work:	
Teaching methods Combination of interactive approach with practical problem solving.			
Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
Pre-exam obligations	points	Final exam	points
activity during theoretical lectures	20	written exam	
practical training	10	oral exam	30
colloquium(s)/seminar papers	20+20		
Sum	70	Sum	30