

Study program: Communication technologies			
Course title: Wireless Telecommunication Systems			
Professor/assistant: : Nikola Sekulović, Ph. D			
Type of course: compulsory			
ECTS credits: 6			
Pre-requisites: none			
Aims of the course: Acquiring theoretical and practical knowledge in the field of information transmission through wireless channels.			
Learning outcomes: After this course, it is expected that students are able to apply the obtained knowledge in solving practical problems regarding wireless transmission, design and performance analysis of wireless communication systems.			
Syllabus			
<u>Theoretical part</u> Distribution plan for frequencies in wireless transmission. Radiation of EM waves. Antennas and antenna parameters. EM wave propagation through atmosphere. Fris transmission equation. Fresnel zone. Fading and techniques to mitigate its impact. Radio broadcasting systems – emission location determination, selection of antenna systems, EM field strength and coverage area. Radio relay systems - calculation of relative position of radio stations, line-of-sight checking and conditions for free propagation of EM wave in I Fresnel zone, quality of service calculation. Examples of real projects for wireless system design.			
<u>Practical part</u> Practical problem solving regarding wireless transmission and performance analysis. Practical work with software packages for design and analysis of wireless telecommunication systems.			
Literature			
<ol style="list-style-type: none"> 1. H. R. Anderson, <i>Fixed broadband wireless system design</i>, Wiley, 2003. 2. B. Milovanović, Z. Marinković, <i>Projektovanje telekomunikacionih sistema</i>, Autorizovana predavanja, Elektronski fakultet, Niš, 2005. 3. A. Goldsmith, <i>Wireless communications</i>, Cambridge University Press, 2005 4. Technical documentation of realized projects. Additional material given by professor. 			
Number of active classes 90			Other forms of teaching:
Lectures: 45	Practical classes: 30+15	Research work:	
Teaching methods Lectures, computational exercises and exercises in laboratory on examples in practice, consultations.			
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	10	written exam	20
practical training		oral exam	20
colloquium(s)/seminar papers	50		
Sum	60	Sum	40