

1.	Course title	Introduction to telecommunications		
2.	Course code	CSEW315		
3.	Study program	IKI, MT		
4.	Unit offering the course	FCSE		
5.	Undergraduate/postgraduate/PhD	Undergraduate		
6.	Year/semester 2-3/summer/elective	7. ECTS: 6		
8.	Teacher(s)	Ljupco Kocarev, Full Professor, Sonja Filiposka, Assistant Professor, Dejan Spasov, Assistant Professor		
9.	Course prerequisites	Calculus 1		
10.	Goals (competences): The goal is to familiarize students with signal analysis and their transfer through linear systems, types of modulation techniques and the effects of noise over modulation techniques.			
11.	Course content: Fundamental concepts and mathematical model of communication system. Frequency domain analysis of signals and systems. Fourier analysis of periodic and aperiodic signals. Transfer over linear systems. Amplitude, phase and angle modulation and demodulation. Noisy communication systems. Noise model and signal-to-noise ration. Effects of noise over modulation techniques.			
12.	Teaching methods: Lectures with slide presentations, interactive lectures, exercises (using equipment and software packages), team work, use cases, guest lectures, individual work and project defence, online collaboration tools.			
13.	Total available time	6 ECTS x 30 hours = 180 hours		
14.	Distribution of the available time	45+30+105 = 180 hours		
15.	Teaching activities	15.1.	Lectures	30 hours
		15.2.	Training (labs, problem solving), seminar and team work	45 hours
16.	Other activities	16.1.	Project work	30 hours
		16.2.	Self study	30 hours
		16.3.	Home work	45 hours
17.	Grading			
	17.1.	Tests		70 points
	17.2.	Seminar work/project (written or oral presentation)		10 points
	17.3.	Active participation		20 points
18.	Grading criteria		to 50 points	5 (five) (F)
			from 51 to 60 points	6 (six) (E)
			from 61 to 70 points	7 (seven) (D)
			from 71 to 80 points	8 (eight) (C)
			from 81 to 90 points	9 (nine) (B)
		from 91 to 100 points	10 (ten) (A)	

19.	Final exam prerequisites	completed activities 15.1 and 15.2				
20.	Course language	Macedonian and English				
21.	Quality assurance methods	internal evaluation and surveys				
22.	Literature					
	22.1.	Compulsory				
		No.	Authors	Title	Publisher	Year
		1.	J. G. Proakis, M. Salehi	Communication Systems Engineering	Prentice-Hall	2002
		2.				
	3.					
	22.2.	Mandatory				
		No.	Authors	Title	Publisher	Year
		1.				
		2.				
3.						