

1.	Course title	<b>Coding Theory</b>		
2.	Course code	KK-Z-03		
3.	Study program	<b>Coding and cryptography</b>		
4.	Unit offering the course	<b>FCSE</b>		
5.	Undergraduate/master/PhD	<b>Master</b>		
6.	Year/semester 1(2)/winter/compulsory	7. ECTS: <b>6</b>		
8.	Teacher(s)	prof. d-r Verica Bakeva prof. d-r Smile Markovski		
9.	Course prerequisites	None		
10.	Goals (competences): The main goal of coding theory is design codes with provide fast and correct transmission through a noisy channel. Different codes are optimal in different applications. The aim of this course is introducing the basic aspects of coding theory and application of error-correcting and error-detecting codes.			
11.	Course content: <ul style="list-style-type: none"> <li>- Introduction to error-correcting codes.</li> <li>- Finite fields. Vector space over finite fields.</li> <li>- Introduction to linear codes. Coding and Decoding of linear codes.</li> <li>- Dual codes, Parity-check codes and syndrome decoding.</li> <li>- Hamming codes. Perfect codes. Cyclic codes.</li> <li>- Error-detecting codes and CRC codes.</li> <li>- Error-correcting codes. Reed-Muller and Reed-Solomon codes.</li> </ul>			
12.	Teaching methods: Lectures supported by slide presentations, interactive lectures, trainings (using lab equipment and software packages), team work, case studies, invited guests and lectures, individual practical assignments presentations, seminar paper, e-learning (forums, consultations).			
13.	Total available time	6 ECTS x 30 hours = 180 hours		
14.	Distribution of the available time	30+30+40+40+40 = 180 hours		
15.	Teaching activities	15.1.	Lectures	30 hours
		15.2.	Training (labs, problem solving), seminar and team work	30 hours
16.	Other activities	16.1.	Project work	40 hours
		16.2.	Self study	40 hours
		16.3.	Home work	40 hours
17.	Grading			
	17.1.	Tests		50 points
	17.2.	Seminar work/project (written or oral presentation)		30 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	Successfully completed activities 15.1 and 15.2				
20.	Course language	Macedonian and English				
21.	Quality assurance methods	Internal evaluation and student questionnaires				
22.	Literature					
	22.1.	Compulsory				
		No.	Authors	Title	Publisher	Year
		1.	Moreira, J.C., Farell, P.G.	Essentials of Error-Control Coding	John Wiley&Sons, Ltd	2006
		2.	Hill, Raymond	A First Course of Coding Theory	Oxford Univetsity Press	1990
		3.	Huffman, W.C., Pless, V.	Fundamentals of Error-Correcting Codes	Cambridge University Press	2003
		Additional				
		No.	Authors	Title	Publisher	Year
	22.2.	1.	Vanstone, S.A., van Ooschot, P.S.	An Introduction to Error Correcting Codes with Applications	Kluwer Academic Publishers, Boston	1989
		2.				
	3.					