1.	Course	**Advanced Aspects of Coding Theory**			
2.	Code	**INF-S13**			
3.	Study programme	Informatics			
4.	Study programme organized by	Faulty of Computer Science and Engineering			
5.	Cycle	Third - PhD			
6.	Academic year / semester winter/summer/elective	first/second	7.	ECTS credits	7,5
8.	Teacher	Prof. D-r Verica Bakeva			
9.	Prerequisites	None			

10.	Course programme goals (competences):
	The aim of the course is generalization of knowledge in coding theory and study of advanced and new aspects for error-detecting and error-correcting codes. Papers with new results from coding theory will be elaborated in this course.

11.	Course syllabus:
	Code Definitions and Code Properties. Shannon theorems. Group codes. Error-detecting codes and CRC. Error-correcting codes. Reed-Muller and Reed-Solomon codes. Algebraic codes. Turbo codes. LDPC codes. Random stream codes.

12.	Teaching methods:
	Classes supported with slide presentations, interactive teaching, project works, reading actual papers, books, e-learning materials, forums and consultations, self-study.

13.	Total fund of work hours	7,5 EKTC x 30 h = 225 h		
14.	Available hours distribution	45+45+45+45+45 = 225		
15.	Teaching activities	15.1.	Theoretical classes	45 h
		15.2.	Practical classes (labs, exercises), seminars, team work	45 h
16.	Other activities	16.1.	Project tasks	45 h
		16.2.	Self study	45 h
		16.3.	Homework	45 h

17.	Grading		
	17.1.	Tests	70 points
	17.2.	Seminar work/ project (presentation: written and oral)	20 points
	17.3.	Active participation	10 points

18.	Grading criteria (points/grade)	to 59 points	5 (five) (F)
		from 60 to 68 points	6 (six) (E)
		from 69 to 76 points	7 (seven) (D)
		from 77 to 84 points	8 (eight) (C)
		from 85 to 92 points	9 (nine) (B)
		from 93 to 100 points	10 (ten) (A)

19.	Conditions for attending the final exam	Successful completion of activities 15.1 and 15.2
20.	Language	Macedonian or English
21.	Quality assessment	Internal evaluation and student pools

<table>
<tr><td rowspan="14">22.</td><td colspan="6">Literature</td></tr>
<tr><td rowspan="7">22.1.</td><td colspan="5">Compulsory</td></tr>
<tr><td>No.</td><td>Author</td><td>Title</td><td>Publisher</td><td>Year</td></tr>
<tr><td>1.</td><td>Richardson, T., Urbake, R.</td><td>Modern Coding Theory</td><td>Cambridge University Press</td><td>2008</td></tr>
<tr><td>2.</td><td>Torleiv K.</td><td>Codes for error detection</td><td>World scientific</td><td>2009</td></tr>
<tr><td>3.</td><td>Ash, R.</td><td>Information Theory</td><td>Dover Publication, Inc.</td><td>1990</td></tr>
<tr><td rowspan="5">22.2.</td><td colspan="5">Additional</td></tr>
<tr><td>No.</td><td>Author</td><td>Title</td><td>Publisher</td><td>Year</td></tr>
<tr><td>1.</td><td></td><td>Actual scientific papers relevant for the considered topic</td><td></td><td></td></tr>
<tr><td>2.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td></td><td></td><td></td><td></td></tr>
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