

1.	Course	<i>Advanced Multimedia Information Systems</i>		
2.	Code	KNI_E16		
3.	Study programme	Computer Science and Engineering PhD study programme		
4.	Study programme organized by	FCSE		
5.	Cycle	Third – PhD		
6.	Academic year / semester winter/summer/elective	7. ECTS credits 7,5		
8.	Teacher	Prof. d-r Danco Davcev, Prof. d-r Sonja Gievska		
9.	Prerequisites	None		
10.	Course programme goals (competences): The students will have the knowledge to employ various techniques for analysis, design and implementation of advances multimedia information systems.			
11.	Course syllabus: Modeling, analysis and design of multimedia information systems. Data management, advanced systems for database management, design and application in digital companies. Multimedia information systems, knowledge management. Annotating ontologies and multimedia data search. The course is organized around the following basic elements: organization, storage, fusion, indexing, access, interaction, search (mostly content based) and processing of multimedia data in distributed mobile and other environments. Techniques for low level characteristics extraction will be used, as well as, multimedia content descriptors, structural and semantic aspects (high level). MPEG and other standards are going to be part of the course. 3D models and searching. Learning and relevant feedback in multimedia environment. Index based content searching and multimedia data search. Semantic based and affect based indexing, searching and finding multimedia data. Similarity metrics for 3D models, images, audio and video. Processing and searching large quantities of multimedia data (especially 3D). Mobile devices and multimedia processing. Cloud, mobile cloud and processing large sets of multimedia data. Multimedia computing in the cloud.			
12.	Teaching methods: Classes supported with slide presentations, interactive teaching, lab equipment and other software packages, teamwork, case studies, invited guest lecturers, presentations of project works, e-learning materials, forums and consultations.			
13.	Total fund of work hours	7,5 EKTC x 30 h = 225 h		
14.	Available hours distribution	45+30+150 = 225		
15.	Teaching activities	15.1.	Theoretical classes	45 h
		15.2.	Practical classes (labs, exercises), seminars, team work	30 h
16.	Other activities	16.1.	Project tasks	50 h
		16.2.	Self study	50 h
		16.3.	Homework	50 h
17.	Grading			
	17.1.	Tests	40 points	

	17.2.	Seminar work/ project (presentation: written and oral)			50 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		
22.	Literature					
	22.1.	Compulsory				
		No.	Author	Title	Publisher	Year
		1.	K. Selcuk Candan, M. L. Sapino	Data Management for Multimedia Retrieval	Cambridge University Press	2010
		2.	T. Shelton	Business models for the Social Mobile Cloud	Wiley	2013
	3.	K. Jeffay, H. J. Zhang,	Readings in Multimedia Computing and Networking	Morgan Kaufmann	2002	
	22.2.	Additional				
		No.	Author	Title	Publisher	Year
		1.	F. Ohlhorst	Big data Analytics	Wiley	2013
		2.	H. Chaouchi	The Internet of Things	Wiley	2010
3.		Current Proceedings of IEEE/ACM				