1.	Course	**Machine Learning**				
2.	Code	**INF-S9**				
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 Ana Madevska Bogdanova				
9.	Prerequisites	None				
10.	Course programme goals (competences): To train the students for building advanced intelligent systems with image and sound processing, while solving problems of pattern recognition, classification, ranking in various domains: medicine, engineering, molecular biology. Candidates will be able to design, implement and evaluate the performance of advanced systems using machine learning					
11.	Course syllabus: Various types of learning (supervised, unsupervised, probabilities), statistical aspects of supervised learning, evolutionary and adaptive systems, a problem of generalization, comprehensive computing (cloud computing). Methods of classification, pattern recognition: decision trees, kernel methods Bayes classification, ensembles					
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 ECTS 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.	C.M. Bishop	"Pattern Recognition and Machine Learning	Springer	2006
		2.	Ian H. Witten, Eibe Frank, Mark A. Hall	Data Mining: Practical Machine Learning Tools and Techniques	Morgan Kaufmann	2011
		3.				
	22.2.	Additional				
		No.		Relevant scientific journal papers		