

1.	Course title	Advanced Natural languages processing		
2.	Course code	IIS-I-12		
3.	Study program	MSC programme - Intelligent Information Systems		
4.	Unit offering the course	FCSE		
5.	Undergraduate/master/PhD	Master		
6.	Year/semester 1/winter/elective	7. ECTS: 6		
8.	Teacher(s)	Igor Trajkovski, Andrea Kulakov		
9.	Course prerequisites	None		
10.	Goals (competences): The Goal of this course is a student to get theoretical and practical knowledge of algorithms for processing natural languages. They will gain knowledge how language structure and meaning are represented in data structures, and how to recognise these language structures and meaning in free text.			
11.	Course content: Morphology, Syntax, Semantics and ambiguity of natural languages, statistical modelling of natural languages, N-Grams, spelling correction, part of speech tagging, parsing.			
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	130 + 0 + 50 = 180 hours		
15.	Teaching activities	15.1.	Lectures	130 hours
		15.2.	Training (labs, problem solving), seminar and team work	0 hours
16.	Other activities	16.1.	Project work	15 hours
		16.2.	Self study	15 hours
		16.3.	Home work	20 hours
17.	Grading			
	17.1.	Tests		65 points
	17.2.	Seminar work/project (written or oral presentation)		25 points
	17.3.	Active participation		10 points
18.	Grading criteria		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.	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.	Daniel Jurafsky and James H. Martin	Speech and Language Processing	Pearson Prentice Hall	2009
		2.	Steven Bird, Ewan Klein and Edward Loper	Natural Language Processing with Python - Analyzing Text with the NLTK	O'Reilly Media	2009
	3.	Mitkov R. (editor)	The handbook of computational linguistics	Oxford University Press	2005	
	22.2.	Additional				
		No.	Authors	Title	Publisher	Year
		1.				
		2.				
3.						