1.	Course Title	Introduction to Data Science
2.	Code	F18L3W008
3.	Study program	Software engineering and information systems
4.	Study Program Organizer	Faculty of Computer Science and Engineering
5.	Degree (first, second, third cycle)	first cycle
6.	Academic year / semester 3 / winter / optional	7. ECTS credits 6
8.	Teacher	full professor Dimitar Trajanov, full professor Ana Madevska Bogdanova, associate professor Slobodan Kalajdzhiski, associate professor Igor Mishkovski, associate professor Vesna Dimitrova, assistant professor Milosh Jovanovikj, assistant professor Kire Trivodaliev, assistant professor Eftim Zdravevski, assistant professor Georgina Mircheva
9.	Course enrollment prerequisites	Бизнис статистика или Веројатност и статистика или Основи на теорија на информации
10.	Course program goals (competencies): Students will obtain knowledge with the Data Science fundamentals and they will be introduced to the process and methodologies for operations with data, starting from problem identification, data collection and data processing. At the end of the course students would know the basic techniques for data processing and pattern recognition in the data, as well as, they will know how to visualize the results and properly interpret them.	
11.	Course program content: (1) Introduction to Data Science as a fourth science paradigm (2) Designing experiments and problem identification (2) Collecting data and data processingСобирање и обработка на податоци (2) Data Analysis (2) Pattern recognition in the data (2) Explanation of the obtained hypothesis (2) Hypothesis testing and feedback	
12.	Learning methods: Lectures using presentations, interactive lectures, exercises (using equipment and software	

	packages), teamwork, case studies, invited guest lecturers, independent preparation and defense of a project assignment and seminar work.			
13.	Total available time		6 ECTS x 30 hours = 180 hours	
14.	Distribution of the available time		30 + 45 + 15 + 15 + 75 = 180 hours	
15.	Teaching activity forms	15.1.	Lectures – theoretical teaching	30 hours
		15.2.	Exercises (laboratory, auditory), seminar papers, teamwork	45 hours
16.	Other activity forms	16.1.	Project Tasks	15 hours
		16.2.	Independent Learning Tasks	15 hours
		16.3.	Home learning	75 hours
17.	Assessment methodology			
	17.1.	Tests		0 points
	17.2.	Seminar paper/project (presentation: written and oral)		20 points
	17.3.	Activity and learning		15 points
	17.4.	Final exam		65 points
18.	Assessment criteria (points/grade)		up to 50 points	5 (five) (F)
			51 to 60 points	6 (six) (E)
			61 to 70 points	7 (seven) (D)
			71 to 80 points	8 (eight) (C)
			81 to 90 points	9 (nine) (B)
			91 to 100 points	10 (ten) (A)
19.	Course completion and final exam requirements		Realized activities 15.1 and 15.2	
20.	Teaching Language		Macedonian and English	
21.	Teaching quality evaluation method		Internal evaluation mechanisms and questionnaires	
22.	Course Material			
	22.1.	Mandatory course material		

No.	Author	Title	Publisher	Year
1	Jeffrey S. Saltz and Jeffrey M. Stanton	An Introduction to Data Science	SAGE Publications	2017
2	Igual, Laura, Seguí, Sant	Introduction to Data Science: A Python Approach to Concepts, Techniques and Applications	Springer International Publishing	2017
3	Jake VanderPlas	Python Data Science Handbook: Essential Tools for Working with Data	O'Reilly	2017

22.2. Additional course material

No.	Author	Title	Publisher	Year