1.	Course Title	Blockchain and cryptocurrencies		
2.	Code	F18L3S121		
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 4 / summer / optional	7. ECTS credits 6		
8.	Teacher	full professor Panche Ribarski, assistant professor Magdalena Kostoska		
9.	Course enrollment prerequisites	Криптографија или Информациска безбедност		
10.	Course program goals (competencies): The purpose of this course is to enable trainees to understand how block chains and crypto currencies work, and the idea, the technologies and organizations that support or emanate from them.			
11.	Course program content: 1. Introduction and history 2. Protocol and consensus - review 3. Storing crypto cavities - cryptography and wallets 4. Bitcoin mechanisms and optimizations 5. Cryptocurrency Mining 6. Game Theory & Network Attacks: How to Destroy Bitcoin 7. Etherium and Smart Contracts: 8. Alternative consensus 9. Enterprise Block Chain 10. Regulations and anonymity 11. Anonymization Techniques, Protocols, and Altcoins 12. Advanced topics and future			
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	10 points
	17.2.	Seminar paper/project (presentation: written and oral)	10 points
	17.3.	Activity and learning	10 points
	17.4.	Final exam	70 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	Narayanan, Bonneau, Felten, Miller, Goldfeder	Bitcoin and Cryptocurrency Technologies	Princeton	2015
2	Antonopoulos	Mastering Bitcoin	O'reilly	2012

22.2. Additional course material

No.	Author	Title	Publisher	Year