1.	Course Title	Service Oriented Architectures
2.	Code	F18L3S155
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 / summer / mandatory	7. ECTS credits 6
8.	Teacher	full professor Panche Ribarski, associate professor Boro Jakimovski
9.	Course enrollment prerequisites	Веб прогрмирање или Интернет технологии или Имплементација на системи со отворен и слободен код
10.	Course program goals (competencies): The students studying Service Oriented Architectures will learn the organization, design and development of distributed systems based on services. Service-oriented architectures course covers topics of software and system engineering. From the aspect of software engineering, the students will learn the process of analysis and design of service-oriented applications, as well as organization of the process of development of software adequate for service-oriented systems. From aspect of system engineering, the course covers the entire ecosystem of service-oriented and micro-service oriented architecture, its components, collaboration, communication and coordination.	
11.	Course program content: - Introduction to service oriented architectures - Layering of services and micro-services - Analysis and modelling of software with web services - Analysis and modelling of software with REST services and microservices - Design of service API and contracts in web services - The process of development of software with micro-services - System design of microservice architecture - Security policies and security in service oriented architectures - Organization, orchestration and management of micro-services environment	
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	Thomas Erl	Service-Oriented Architecture: Analysis and Design for Services and Microservices	Prentice hall	2017
2	Sam Newman	Building Microservices: Designing Fine-Grained Systems	O'Reilly Media	2015

22.2. Additional course material

	No.	Author	Title	Publisher	Year