1.	Course title	**Software testing and usability**
2.	Course code	SI-Z-03
3.	Study program	**Master studies of Computer Science and Engineering - Software Engineering**
4.	Unit offering the course	**FCSE**
5.	Undergraduate/master/PhD	**Master**
6.	Year/semester 2/summer/compulsory	7. ECTS: **6**
8.	Teacher(s)	prof. dr. Suzana Loshkovska /assist. prof. dr. Ivica Dimitrovski / assist. prof. dr. Anastas Mishev
9.	Course prerequisites	None
10.	Goals (competences): Upon completion of the course the student is expected to understand, analyse and generalize various methods for software testing, design, implementation, to apply and describe the different strategies and tools for testing, to compare, evaluate and choose testing methods, to use of tools, techniques and different metrics for software testing, to understand and design specifications for usability, to understand and be able to determine the key differences in the various approaches for evaluating usability, to apply different methods for assessing the usability of design, to distinguish different approaches for usability evaluation, to construct evaluation plan, methods for measuring usability, to use of usability engineering methods for analysing and comparing software systems, to determine and define different methods for collecting and analysing data obtained from the usability evaluation.	
11.	Course content: Techniques and concepts of software testing. Most common sources and reasons for errors in the software. Approaches of software testing – modular and systematic, automated and manual techniques for generation and validation of the testing data, static and dynamic analysis. Techniques for designing tests. Strategies for software testing. Planning the software test. Testing specific parts of the software. Testing components in software integration. Testing the complete software. Test-driven software implementation. Testing the accuracy, completeness, reliability, efficiency, portability, sustainability, compatibility and usability. Static and dynamic testing. Measuring the level of the performed testing. Techniques for testing: white box, black box, and grey box. Techniques for verification and validation. Stress testing. Security testing. Automation of software testing. Usability testing. Evaluation of usability. Methods for usability testing. Selection of evaluators and evaluation techniques based on the users of the software. Ethical issues in usability testing. Heuristic evaluation. Techniques for evaluating the usability questionnaires, walkthrough the system, expert evaluation. Usability of Web.	
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	60 + 0 + 120 = 180 hours

		15.1.	Lectures	60 hours
15.	Teaching activities	15.2.	Training (labs, problem solving), seminar and team work	0 hours
16.	Other activities	16.1.	Project work	45 hours
		16.2.	Self study	45 hours
		16.3.	Home work	30 hours

	Grading		
17.	17.1.	Tests	45 points
	17.2.	Seminar work/project (written or oral presentation)	45 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

	Literature					
22.	22.1.	Compulsory				
		No.	Authors	Title	Publisher	Year
		1.	W. E. Lewis	Software Testing and Continuous Quality Improvement	Auerbach	2004
		2.	A. Dasso, A. Funes	Verification, Validation and Testing in Software Engineering	IGI Global	2006
		3.	J. Rubin, D. Chisnell	Handbook of Usability Testing, Second Edition: How to Plan, Design, and Conduct Effective Tests	Wiley Publishing, Inc.	2008
	22.2.	Additional				
		No.	Authors	Title	Publisher	Year
		1.				
		2.				
		3.				