

1.	Course Title	Autonomous robotics		
2.	Code	F18L3W072		
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 / winter / optional	7. ECTS credits 6		
8.	Teacher	associate professor Andrea Kulakov, assistant professor Petre Lameski		
9.	Course enrollment prerequisites	Основи на роботика		
10.	Course program goals (competencies): After finishing this course, the student is expected to have advanced knowledge in the development of autonomous robotics systems (autonomous vehicles, drones etc.) by using probabilistic approaches in robotics.			
11.	Course program content: Sensors and actuators in autonomous robots, mathematical principles, probabilistic sensor models, probabilistic control models, kalman filters and implementations of kalman filters, mapping, localization, simultaneous localization and mapping, planning and learning methods used by intelligent robotic systems.			
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	Sebastian Thurn, Wolfram Burgard, Dieter Fox	Probabilistic Robotics
		2	Roland Siegwart, Illah Reza Nourbakhsh, Davide Scaramuzza	Introduction to Autonomous Mobile Robots
	22.2.	Additional course material		
		No.	Author	Title
			Publisher	Year

