

1.	Course title	Wireless and ad hoc computer networks		
2.	Course code	KMET-I-01		
3.	Study program	Computer networks and e-technologies		
4.	Unit offering the course	FCSE		
5.	Undergraduate/master/PhD	Master		
6.	Year/semester 1(2)/winter/elective	7. ECTS: 6		
8.	Teacher(s)	Assist. Prof. Sonja Filiposka, Assist. Prof. Anastas Mishev		
9.	Course prerequisites	None		
10.	Goals (competences): After successfully completing the course, the student is expected to understand the modern protocols and standards used for wireless communication. The student will be able to design wireless networks and understand the performances of different ad hoc routing protocols.			
11.	Course content: Wireless communication systems. Wireless networking standards. Overview of 802.11 wireless networks. 802.11 MAC. 802.15 Bluetooth. Personal wireless networks. 802.16. Broadband wireless networks. Ad hoc wireless networks. Sensor networks. Optical wireless networks. Quality of service and multimedia support. MobileIP. Wireless networks security. Wireless networks deployed by mobile operators. GSM, GPRS. 3rd and 4th generation mobile networks. Satellite networks. GPS. Using GIS for design of wireless networks. Modern wireless computer networks: structure and design. Connecting wireless networks to the wired side. Network devices. Monitoring and management of wireless networks. Network applications and performances.			
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	30 + 15 + 135 = 180 hours		
15.	Teaching activities	15.1.	Lectures	30 hours
		15.2.	Training (labs, problem solving), seminar and team work	15 hours
16.	Other activities	16.1.	Project work	60 hours
		16.2.	Self study	25 hours
		16.3.	Home work	50 hours
17.	Grading			
	17.1.	Tests		50 points
	17.2.	Seminar work/project (written or oral presentation)		35 points
	17.3.	Active participation		15 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		
22.	Literature			
	22.1.	Compulsory		
		No.	Authors	Title
		1.	Anurag Kumar, D. Manjunath, Joy Kuri	Wireless Networking
		2.	Xiangyang Li	Wireless Ad Hoc and Sensor Networks: Theory and Applications
	3.	Vijay K. Garg	Wireless Communications and Networking	
	22.2.	Additional		
		No.	Authors	Title
		1.		Selected IEEE and ACM publications
		2.		
3.				