1.	Course title	Computer Networks		
2.	Course code	CSEW302		
3.	Study program			
4.	Unit offering the course	FCSE		
5.	Undergraduate/postgraduate/PhD	Undergraduate		
6.	Year/semester 2-3/winter/mandatory	7. ECTS: **6**		
8.	Teacher(s)	Marjan Gusev, Full Professor, Dimitar Trajanov, Associate Professor, Dejan Spasov, Assistant Professor, Sonja Filiposka, Assistant Professor, Igor Miskovski, Assistant Professor		
9.	Course prerequisites	Computer Architecture and Organization (at least audit)		
10.	Goals (competences): Introduction to fundamental concepts in computer networks. Students will gain knowledge of network architectures, network protocols and how to design computer network. Students will be familiarized with main components and applications of TCP/IP protocol suite.			
11.	Course content: Fundamental models of communication, data communications and networks, protocols and their basic architecture, the idea behind standardization, data transfer, network types (LAN, MAN, WAN). Multiplexing and commutation. ISO/OSI and Internet, TCP/IP and ATM. Basic principles of physical layer and its limitations. Data layer: frame format, flow control, medium access layer and Ethernet-based networks. The ARP protocol. Network layer: routing protocols, IP protocol (address scheme, masks and subnetworks) RIP, OSPF, EIGRP routing protocols. Overview of Transport layer protocols and Application layer protocols. Principles of operation of DHCP and DNS. Overview of network security.			
12.	Teaching methods: Lectures with slide presentations, interactive lectures, exercises (using equipment and software packages), team work, use cases, guest lectures, individual work and project defence, online collaboration tools.			
13.	Total available time	6 ECTS x 30 hours = 180 hours		
14.	Distribution of the available time	30+60+30+20+40 = 180 hours		
15.	Teaching activities	15.1.	Lectures	30 hours
		15.2.	Training (labs, problem solving), seminar and team work	60 hours
16.	Other activities	16.1.	Project work	30 hours
		16.2.	Self study	20 hours
		16.3.	Home work	40 hours

17.	Grading				
	17.1.	Tests			75 points
	17.2.	Seminar work/project (written or oral presentation)			20 points
	17.3.	Active participation			5 points
18.	Grading criteria		to 50 points		5 (five) (F)
			from 51 to 60 points		6 (six) (E)
			from 61 to 70 points		7 (seven) (D)
			from 71 to 80 points		8 (eight) (C)
			from 81 to 90 points		9 (nine) (B)
			from 91 to 100 points		10 (ten) (A)
19.	Final exam prerequisites		completed activities 15.1 and 15.2		
20.	Course language		Macedonian and English		
21.	Quality assurance methods		internal evaluation and surveys		

22.	Literature					
	22.1.	Compulsory				
		No.	Authors	Title	Publisher	Year
		1.	Andrew S. Tanenbaum	Computer Networks	Prentice Hall	2002
		2.	William Stallings	Data and Computer Communications	Prentice Hall	2010
		3.	Larry L. Peterson, Bruce S. Davie	Computer Networks, 5th edition: A System Approach	Morgan Kaufmann	2011
	22.2.	Mandatory				
		No.	Authors	Title	Publisher	Year
		1.	B. Forouzan	Data Communication and Networking 4th Edition	McGraw-Hill	2009
		2.	Leon-Garcia, Widjaja	Communication Networks 2e	McGraw-Hill Professional	2003
		3.	James F. Kurose and Keith W. Ross	Computer Networking: A Top-Down Approach Featuring the Internet 3rd Edition	Addison Wesley	2004