1.	Course title	**Web services and XML**		
2.	Course code	KMET-I-15		
3.	Study program	**Computer networks and e-technologies**		
4.	Unit offering the course	**FCSE**		
5.	Undergraduate/master/PhD	**Master**		
6.	Year/semester 1(2)/summer/elective	7. ECTS: **6**		
8.	Teacher(s)	Assoc. Prof. Dimitar Trajanov, Assist. Prof. Igor Mishkovski		
9.	Course prerequisites	None		
10.	Goals (competences): After successfully completing the course, the student is expected to understand and use web services and XML language. The student will be able to create different web services using the available technologies.			
11.	Course content: Web services architecture. Client-server model. Web services hosting. Usage of web services. Communication patterns. UDDI registry. UDDI interface. Using UDDI for service publication. XML digital signatures and encryption. SOAP security add-ons. Web service development in ASP.Net, Java and PHP. Using web services in mobile applications. Service based applications. SOA: service design. Service development patterns. Service composition patterns. Semantic web, standards and services. Cloud services. Amazon, Google, Microsoft Azure cloud services. ITIL: service strategy, service design, service transition, service orientation, and continuous service improvements.			
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		40 points
	17.2.	Seminar work/project (written or oral presentation)		45 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					
		Compulsory				
	22.1.	No.	Authors	Title	Publisher	Year
		1.	Leonard Richardson, Sam Ruby	RESTful Web Services: Web services for the real world	O'Reilly Media	2007
		2.	Thomas Erl	SOA Design Patterns	PRENTICE HALL	2009
		3.	Claire Engle, Jackie Brewster, Gerard Blokdijk	How to Develop, Implement and Enforce ITIL V3's Best Practices	Emereo Publishing	2009
		Additional				
	22.2.	No.	Authors	Title	Publisher	Year
		1.	Liyang Yu	Introduction to the Semantic Web and Semantic Web Services	Taylor & Francis Group	2007
		2.		Selected papers		
		3.				