1.	Course Title	Object Oriented Analysis and Design
2.	Code	F18L1S015
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 1 / summer / mandatory	7. ECTS credits 6
8.	Teacher	associate professor Slobodan Kalajdzhiski, assistant professor Kire Trivodaliev, assistant professor Biljana Stojkoska
9.	Course enrollment prerequisites	

10.	Course program goals (competencies): Introduction to the techniques that are necessary for analysis, design and modeling of object-oriented systems. Enabling practical analysis of user requirements and creating effective OO models as the initial phase of implementation of the OO system.
11.	Course program content: Introduction to the object-oriented model of the real world, and its application in software engineering. Code reusability, standardization. Basic characteristics of the object-oriented paradigm. Classes and objects and their notation. Development of OO software. Modularity, hierarchy, aggregation and generalization. Basic Concepts of UML. Basic class diagrams. Associations between classes. Restrictions and qualifiers. Interfaces. Use case diagrams. Functions of inclusion and expansion. Activity diagrams . State diagrams. Sequence diagrams. Collaboration diagrams. Interaction with other systems. Defining interfaces to other systems using UML. Component diagrams. Deployment diagrams in UML. Practical application of UML notation.
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	G. Booch, J. Rumbaugh, I. Jacobson	The Unified Modeling Language User Guide	Addison Wesley Professional	2005
2	A. Dennis, B. Haley Wixom, D. Tegarden	Systems Analysis and Design with UML	Wiley	2007
3	M. Fowler	UML Distilled: A Brief Guide to the Standard Object Modeling Language	Addison Wesley Professional	2003
4	Binder, R.V.	Testing object - oriented systems: Models, Patterns and Tools	Addison Wesley Professional	2000

22.2.	Additional course material				
	No.	Author	Title	Publisher	Year