Basic data of the subject	
Academic unit:	**Faculty of Engineering and Informatics** **Applied Informatics**
Title of the subject:	**Discrete Structures**
Level:	**Bachelor**
Course Status:	**Obligatory**
Year of studies:	**I**
Number of hours per week:	**3**
Value of Credits - ECTS:	**4**
Time / location:	
Course lecturer:	**Prof.Ass.Dr.Bashkim Çerkini**
Contact details:	Bashkim.cerkini@ushaf.net
Course Description:	*This course covers elementary discrete structures for computer science. It emphasizes mathematical definitions and proofs as well as applicable methods. Topics include formal logic notation, proof methods; sets; relations and functions, elementary graph theory; general concepts of cryptography.*
Objectives of the course:	*The purpose of this course is to understand and use (abstract) discrete structures that are backbones of computer science. In particular, this class is meant to introduce logic, proofs, sets, relations, functions, algorithms, graph, with an emphasis on applications in computer science.*
Expected learning outcomes:	*Upon successful completion of this course, student will be able to:* • *Know, understand and apply the discrete structure statements and methods.* • *Know discrete stricture scope.* • *Know the information coding principles.* • *Simulate, describe and solve practical computing tasks by using discrete structure knowledge.*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**In total**
Lectures with numerical exercises	3	15	45
Internship			
Contacts with teacher / consultations			
Field exercises			
Midterm, seminars and projects.	3	2	6
Homework			
Self-learning time student (at the library or at home)	2	10	20
Final preparation for the exam	7	2	14
Time spent on evaluation (tests, quiz and final exam)			

Projects and presentations.	3	5	15
Total			**100**

Teaching methodology:	*The course takes 15 weeks with 2 hours of lectures and 2 hours weekly individual and group exercises.* *Exercises will be held in the form of individual and group work in which concrete examples will be discussed.* *Active participation is extremely important so students are encouraged to attend lectures and exercises regularly and contribute to the discussions that take place in lectures. Lectures, exercise, individual work, discussions and group work.*
Assessment methods:	*Test 1, Test 2, Attendance and Activity.* *Final exam: 100%*
The ratio of theory and practice:	*100% Theory with numerical exercises.*
Literature	
Basic Literature:	1. *Rosen, K. H. (2012) "Discrete Mathematics and Its Applications". Seventh Edition. Published by McGraw-Hill,*
Additional Literature:	2. *Caldwell, J. (2011) "Logic and Discrete Mathematics for Computer Scientists", Department of Computer Science, University of Wyoming Laramie, Wyoming, 2011*
Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one:	*Course Presentation*
Week two:	*Combinatorics*
Week three:	*Propositional logic*
Week four:	*Normal forms*
Week five:	*Predicate logic*
Week six:	*Set theory*
Week seven:	*Test 1*
Week eight:	*Relations and Functions*
Week nine:	*Elements of Probability*
Week ten:	*Graph Theory*
Week eleven:	*Cryptography*
Week twelve:	*Algorithms*
Week thirteen:	*Complexity*
Week fourteen:	*Test 2*
Week fifteen:	*Course summary and exam preparation*
Academic policies and rules of conduct	
Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress.	