



UNIVERSITY OF PRIZREN

FACULTY OF COMPUTER SCIENCE

PROGRAM: TIT

Curriculum – SYLLABUS							
Level of studies	Bachelor	Program	TIT	Academic year	2018/19		
SUBJECT		Discret Mathematic					
Year	I	Status Of the subject	Obligatory	Code		ECTS credits	6
Semester	II			Hours teaching	60		
Teaching weeks		15				Lectures	Exercises
						2	2
Teaching Methodology		Lectures, exercises, consultations, tests.					
Consultation		Friday from 14.00 to 16.00					
The teacher	Prof. Dr. Fevzi Berisha			E-mail:	fevzi.berisha@uni-pr.edu		
				Tel.:	044 126989		
Assistant				E-mail:			
				Tel.:			
Study goal and table of content				Benefits of student			
<ul style="list-style-type: none"> • assist in the solving of computer and computer problems by mathematical thinking; • understand the finite mathematical structures; • to establish a correlation between algebra and geometry • The student gets detailed on elementary set theory, number theory, logic, counting techniques, graph theory and algorithms and will be able to use it during algorithms developing. 				Students will be able to: <ul style="list-style-type: none"> • use the math logic symbols correctly and conclude on the accuracy of the logic formulas; • use the concepts of algebra and geometry; • Implement community actions to form new communities; • describe the properties of binary relations; • describe the function and identify its types; • describe algebraic structures; • Describe Buli's algebra and properties; • implement Buli's algebra for solving various problems; • describe permutations, combinations and variations; • describe the graphs and their properties; • describe 			

Methodology for the implementation of educational topics:		
The learning methods are a combination of lectures, practical and independent study.		
Conditions for realization of educational topics:		
Adequate literature, use of IT tools.		
Ways of assessing of the student (in %) :	Evaluation in%	Final grade
	Regular attendance and engagement 10%	51-60 % mark 6
	First Intermediate Evaluation 15%	61-70 % 7
	Second Intermediate Evaluation 15%	71-80 % 8
		81-90 % 9
		91-100 % 10

	Final assessment 40%		
Total	100.00 %		
Obligations of student:			
Lectures	Exercises		
The student should be regular in lectures and exercises, make use of all learning opportunities, use compulsory and broader literature, be active and respect the rules on high school ethics in courtesy and co-operation.	The student should be active in the exercises and reflect the readiness and knowledge of initiatives, ideas and demonstrations of the knowledge acquired in the lectures.		
Activities			
	Hour/ weeks	Days/Weeks	
Lectures	2	15	
Laboratory exercises	2	15	
Contacts with teachers / consultations			
Practical work			
Projects, presentations, etc.			
Own study time	3	15	
Preparation for final exam	1	15	
Time spent in the assessment (tests, final exam, etc.)	2	15	
Notice: 1 ECTS credits= 25 hour commitment, e.g. if the subject has 6 ECTS credits student must have 150 hours during the semester commitment.		Total load: 150	
Week	Lectures	Hour	Exercises
	Topic		Topic
1	Algorithms. Positive operational systems	2	Discussion questions- Task from content
2	Mathematical reasoning; propositions; negation disjunction and conjunction; implication and equivalence;	2	Discussion questions- Task from content
3	Truth tables; predicates; quantifiers; natural deduction; rules of Inference	2	Examples for discussion Task from content
4	Methods of proofs; use in program proving; resolution principle; application to PROLOG	2	Examples for discussion Task from content
5	Functions; mappings; injection and surjections; composition of functions; inverse functions;special functions	2	Examples for discussion Task from content
6	Peono postulates; pigeonhole principle; recursive function theory;	2	Examples for discussion
7	Set theory; Paradoxes in set theory; inductive definition of sets and proof by induction	2	Task from content
8	Relations; representation of relations by graphs; properties of relations;e quivalence relations and partitions; Partial orderings; Posets; Linear and well-ordered sets;	2	Examples for discussion
9	Definition and elementary properties of groups, semigroups, monoids	2	Task from content

10	Rings, fields, vector spaces and lattices	2	Examples for discussion	2
11	Elementary combinatorics	2	Task from content	2
12	Counting techniques; recurrence relation; generating functions	2	Examples for discussion	2
13	Introduction to graph theory	2	Task from content	2
14	Graph Theory; elements of graph theory, Euler graph,	2	Examples for discussion	2
15	Hamiltonian path, trees, tree traversals, spanning trees;	2	Task from content	2

LITERATURE:

- [1] Peter Grassman, *Discrete Mathematics for computing*, New York, 1995.
- [2] Seymour Lipschuz & Marc Lipson, *2000 solved problems in Discrete Mathematics*, Schaum's solved problems series, McGraw-Hill, 1992.
- [3] Vasillaq Kedhi, *Grafet dhe rrjedhat ne rrjeta*, Libri Universitar, Tiranë, 2000.
- [4] Qefsere Doko – *Matematiak diskrete – prishtinë- 2015*
- [5] K.H.Rosen, *Discrete Mathematics and applications*, fifth edition 2003, Tata McGraw Hill publishing Company.

NOTICE:

It is envisaged based on the study plan the small fund of training hours

Notice for the student:

Maximum engagement, regular attendance and lectures required.
 Work independently in solving tasks.
 Research on literacy and use of information technology information technology