

Course Name : Graph Theory and Algorithms							
Course Code	Course Type	Regular Semester	Lecture (hours/week)	Seminar (hours/week)	Lab. (hours/week)	Credits	ECTS
CMP 226	D	Spring	2.00	0.00	2.00	3.00	6.00
Lecturer		Edlir Spaho, MSc					
Assistant							
Course language		Albanian					
Course level		Bachelor					
Description							
Objectives							
Core Concepts							
Course Outline							
Week	Topic						
1	The concept of graph and some accompanying notions						
2	Eulerian cycles						
3	Cycle and co-cycle spaces						
4	Stacks, their main properties						
5	Queues, their main properties						
6	Trees, edges with minimal weight						
7	Vertex Coloring						
8	Semi Final Exam						
9	Matching						
10	Hamiltonian cycles						
11	Binary Trees						
12	Binary Stacks						
13	Balanced Trees						
14	Splay Trees						
15	General Review						
16	Final Exam						

Prerequisites	The student must attend the course at a minimum rate of 75%.		
Literature	• Algoritme dhe struktura e të dhënave, Avni Rexhepi 2014 • Cikël leksionesh Teori Grafesh, E. Cuni 2010		
References	• J. A. Bondy and U. S. R. Murty: Graph theory with applications		
Course Outcome			
1	get acquainted with the basic elements of combinatorics - permutations, variations, combinations, partitions, compositions.		
2	get acquainted with the meaning of graph, types of graphs and apply this knowledge in solving various problems and apply them to programming.		
3	to get acquainted with the concept of roads and circuits and connectivity, in order to apply them to phenomena and problems in the field of computer science.		
4	get acquainted with the Euler and Hamiltonian Graph and their application in programming.		
5	get acquainted with the problem of the shortest path and its application in programming.		
6	get acquainted with isomorphic graphs.		
Course Evaluation			
In-term Studies		Quantity	Percentage
Midterms		1	30
Quizzes		0	0
Projects		1	30
Term Projects		0	0
Laboratory		0	0
Class Participation		0	0
Total in-term evaluation percent			60
Final exam percent			40
Total			100
ECTS Workload (Based on Student Workload)			
Activities	Quantity	Duration (hours)	Total (hours)
Course duration (Including the exam week: 16x Total hours of the course)	16	4	64
Study hours outside the classroom (Preparation, Practice, etc.)	14	3	42
Duties	1	15	15
Midterms	1	10	10
Final Exam	1	15	15
Other	0	0	0
Total Work Load			146
Total Work Load / 25 (hours)			5.84
ECTS			6.00