

	Course name: MATH 328 Graph Theory		Department: Mathematics				Semester
	Methods of Education						6
	Lecture	Recitation/ (Etud)	Lab	Exams	Homework/ Quiz	Other	Total
42	0	0	40	0	98	180	Credit (ECTS) 6
Language	English						
Compulsory/Elective	Elective						
Prerequisites	None						
Course Contents	Week	Subjects					
	1	<ul style="list-style-type: none"> ▪ Graphs as models, basic graph parameters. ▪ Paths, cycles, trials. 					
	2	<ul style="list-style-type: none"> ▪ Vertex degree, graphic sequence. ▪ Graph isomorphism. 					
	3	<ul style="list-style-type: none"> ▪ Directed graphs. ▪ Trees. 					
	4	<ul style="list-style-type: none"> ▪ Distance in trees and graphs. ▪ Spanning trees. 					
	5	<ul style="list-style-type: none"> ▪ Matchings and covers. ▪ Hall's matching theorem. 					
	6	<ul style="list-style-type: none"> ▪ Factors, Tutte's 1-factor theorem. 					
	7	<ul style="list-style-type: none"> ▪ Independent sets. ▪ Dominating sets 					
	8	<ul style="list-style-type: none"> ▪ Connectivity of graphs. 					
	9	<ul style="list-style-type: none"> ▪ Edge-connectivity. 					
	10	<ul style="list-style-type: none"> ▪ Vertex coloring and upper bounds. ▪ Brook's theorem. 					
	11	<ul style="list-style-type: none"> ▪ Turan's theorem. ▪ Counting proper colorings. 					
	12	<ul style="list-style-type: none"> ▪ Chordal graphs. ▪ Perfect graphs. 					
	13	<ul style="list-style-type: none"> ▪ Planar graphs. ▪ Euler's formula. 					
	14	<ul style="list-style-type: none"> ▪ Kuratowski's theorem. ▪ Coloring of planar graphs. 					
Course Objectives	<p>The purpose of this course is</p> <ul style="list-style-type: none"> • to teach basic graph parameters, • to give fundamental theorems and techniques in graph theory, • to teach how daily life problems are converted to graphs. 						
Learning Outcomes and Competences	<p>Upon completion of this course students will</p> <ul style="list-style-type: none"> • learn basic concepts and tools in graph theory, • learn how to model problems from other fields or branches of mathematics in a graph theoretical point of view. 						
Textbook and /or References	<p>1) West, D., <i>Introduction to Graph Theory</i>, 2nd edition Pearson Education. 2) Chartrand, G. and Lesniak, L., <i>Graphs and Digraphs</i>, 3rd edition Chapman and Hall/CRC</p>						

		If any, mark as (X)	Percentage (%)
Assessment Criteria	Midterm Exams	X	40
	Quizzes		
	Homework		
	Projects		
	Term Paper		
	Laboratory work		
	Other		
	Final Exam	X	60
Instructors			