AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Graph Theory II								
Course Code	MTK546		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The aim of this course is to provide students with the symmetry groups of planar and non-planar graphs and transitivity properties of these groups on the vertices and edges.								
Course Content	Planar graphs, infinite planar graphs, locally finite planar graphs, symmetry groups of graphs, edge-transitive graphs, vertex-transitive graphs, Cayley graphs, Cayley graphs of finite and infinite graphs, graphs on surfaces, Euler characteristic, graphs on non-orientable surfaces, graphs on tori, vertex and edge-transitive graphs on surfaces, graphs on surfaces of genus greater than one.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

Recommended or Required Reading	
1	B. Mohar and C. Thomassen, Graphs on Surfaces, Johns Hopkins University Press, 2001.
2	J.E. Graver and M.E. Watkins, Locally Finite, Planar, Edge-Transitive Graphs, Memoirs of the AMS, Vol. 126, No. 601, 1997.

Week	Weekly Detailed Course Contents	
1	Theoretical	Planar Graphs
2	Theoretical	Infinite Planar Graphs
3	Theoretical	Locally finite Planar Graphs
4	Theoretical	Symmetry Groups of Graphs
5	Theoretical	Edge-Transitive Graphs
6	Theoretical	Vertex-Transitive Graphs
7	Theoretical	Cayley Graphs
8	Theoretical	Cayley Graphs of Finite and Infinite Graphs
9	Intermediate Exam	MIDTERM EXAM
10	Theoretical	Graphs on Surfaces
11	Theoretical	Euler Characteristic
12	Theoretical	Graphs on Non-orientable Surfaces
13	Theoretical	Graphs on Tori
14	Theoretical	Vertex and Edge-transitive Graphs on Surfaces
15	Theoretical	Graphs on Surfaces of Genus Greater than One
16	Final Exam	FINAL EXAM

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	1	20	2	22
Midterm Examination	1	40	2	42
Final Examination	1	50	2	52
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Ability to determine the symmetry group of a graph.
2	Ability to determine whether a graph is vertex or edge-transitive.
3	Ability to determine the genus of a graph.
4	Ability to form the Cayley graph of a group.
5	Ability to classify edge-transitive graphs.

Programme Outcomes *(Mathematics Master)*	
1	To be able to have an adequate theoretical and practical domain knowledge.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use theoretical and practical domain knowledge gained in the field of Mathematics.
4	To be able to interpret knowledge from different disciplines integrating knowledge in the field of mathematics and produce new information.
5	To be able to define, analyse, model and to solve the problems by scientific methods in Mathematics.
6	To be able to conduct a math related specialistic study independently.
7	To be able to develop new strategic approaches to solve problems occurred in unforeseen and complex math-related applications by taking responsibility.
8	To be able to lead in situations that require solving problems related to the mathematics.
9	To be able to criticize his/her knowledge and skills acquired in the field mathematics.
10	To be able to transfer his/her ideas and suggestions for solutions to problems by supporting quantitative or qualitative data verbally and in writing.
11	To be able to communicate both orally and written in a foreign language.
12	To be able to use computer hardware and information technologies with software required by Mathematics.
13	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and being able to support the development of social, scientific, cultural and ethical values.
14	To be able to develop mathematics-related strategies, policies and operational plans, and to evaluate the results obtained within the framework of quality processes.
15	To be able to use his/her knowledge in the field of mathematics and practical problem-solving skills in interdisciplinary studies.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	3	5	4	4	4
P2	4	4	5	5	4
P3	3	3	3	3	3
P4	4	4	4	5	4
P5	3	3	4	3	3
P10	4	4	3	4	3
P15	5	4	4	5	4