



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Topology							
Course Code		MTK505		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The purpose of this course is to present the students with the subjects in the course content at the graduate level							
Course Content		Metric spaces, open balls, open and closed sets in metric spaces, equivalent metrics, sequences and continuity in metric spaces, topological spaces, open and closed sets in topological spaces, subspaces, metrizable spaces, bases, sub bases, local bases, continuity, product spaces, quotient spaces, , and Hausdorff spaces, regular and normal spaces, sequences, nets, filters, compactness, connectedness							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)		Prof. Adnan MELEKOĞLU							

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

### Recommended or Required Reading

1	Munkres, J.R. (1999) Topology, Prentice Hall
2	Gemignani, M. (1990) Elementary Topology, Dover Publications

Week	Weekly Detailed Course Contents	
1	Theoretical	Metric spaces
2	Theoretical	Topological spaces
3	Theoretical	Bases and sub bases
4	Theoretical	Continuous functions
5	Theoretical	Product spaces
6	Theoretical	Quotient spaces
7	Theoretical	Sequences
8	Intermediate Exam	MIDTERM EXAM
10	Theoretical	Filters
11	Theoretical	Separation axioms
12	Theoretical	Compactness
13	Theoretical	Compactness
14	Theoretical	Connectedness
15	Theoretical	Connectedness
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	To be able to define the concept of metric, to be able to determine the open and closed sets
2	To be able to define the concept of topology, to be able to form topology by means of base and sub base
3	To be able to define continuous and discontinuous functions between topological spaces
4	To be able to obtain the product of two given topological spaces
5	To be able to form the quotient topology by means of an equivalence relation and a topology
6	To be able to define the concepts of sequences, nets and filters
7	To be able to explain the concepts of $T_0, T_1$ , Hausdorff, regular and normal spaces and their relationships
8	To be able to explain the concepts of compactness and its relationships with other topological concepts
9	To be able to define the concepts of connectedness and path connectedness and to be able to explain the relationships between each other and other topological concepts

**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	L6	L7	L8	L9
P1	3	3	3	3	3	3	3	3	3
P2	1	1	1	1	1	1	1	1	1
P3	1	1	1	1	1	1	1	1	1
P9	3	3	3	3	3	3	3	3	3
P14	2	2	2	2	2	2	2	2	2
P15	1	1	1	1	1	1	1	1	1

