



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Advanced Topology							
Course Code		MTK605		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	10	Workload	249 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To present the students with the subjects in the course content at the graduate level.							
Course Content		Convergence, countability and separation axioms, compactness, connectedness, Tychonoff theorem, compactifications, metrization theorems, paracompactness, Complete metric spaces and function spaces, uniform spaces, Baire spaces.							
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	20
Final Examination	1	60
Quiz	2	10
Assignment	1	10

Recommended or Required Reading

1	Topology, Munkres, J.R., Prentice Hall, 1999
2	General Topology, Willard, S., Addison-Wesley Publishing, 1970

Week	Weekly Detailed Course Contents	
1	Theoretical	Convergence
2	Theoretical	Countability axioms
3	Theoretical	Separation axioms
4	Theoretical	Compactness
5	Theoretical	Connectedness
6	Theoretical	Tychonoff theorem
7	Theoretical	Compactifications
8	Intermediate Exam	MIDTERM EXAM
9	Theoretical	Metrization theorems
10	Theoretical	Paracompactness
11	Theoretical	Complete metric spaces
12	Theoretical	Function spaces
13	Theoretical	Uniform spaces
14	Theoretical	Baire spaces
15	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	1	0	24	24
Quiz	2	20	1	42
Midterm Examination	1	45	2	47
Final Examination	1	50	2	52
Total Workload (Hours)				249
[Total Workload (Hours) / 25*] = ECTS				10

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	Defining the concepts of sequence, net and filter in topological spaces
2	Expressing the concepts of T_0 , T_1 , Hausdorff, regular and normal spaces and their relationships
3	Defining the concepts of compactness and connectedness and their relationships with other concepts
4	Expressing Tychonoff theorem and its applications
5	Defining the concept of paracompactness and its relationships with other concepts
6	Defining the concepts of Cauchy sequences and complete metric spaces
7	Defining the concepts of uniform and Baire spaces

Programme Outcomes (Mathematics Doctorate)

1	To be able to develop the current and advanced knowledge of mathematics domain to expertise level by an original idea or research, based on the level of its knowledge at the graduate level, and to be able to reach original definitions that will bring innovation to Mathematics.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use and evaluate the new knowledge in the field of Mathematics with a systematic approach.
4	To be able to develop an idea, a method, a design or an application that will bring innovation to Mathematics, to use well known ideas, methods, designs or applications on a different research area, or to search, comprehend, design, adapt and apply an original subject matter.
5	To be able to criticize, analyze, synthesize and evaluate new and complex ideas.
6	To be able have high-level skills in research methods related to studies on Mathematics.
7	To be able to expand the frontiers knowledge in the field of Mathematics via generating or interpreting an original study, or publishing at least a scientific paper in national/international refereed journals.
8	To be capable of leadership in the positions that require the analyses of problems related to the field of Mathematics.
9	To be able to defend his/her original ideas among the experts in the discussion of math related issues, and to be able to communicate effectively to show his/her competence in the field of Mathematics.
10	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and to be able to support the development of social, scientific, cultural and ethical values.
11	To be able to have both oral and written communication using a foreign language.

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
P1	1	1	1	1	1	1	1
P3	3	3	3	3	3	3	3
P6	2	2	2	2	2	2	2
P7	1	1	1	1	1	1	1

