AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Functional Analysis						
Course Code	MTK544		Couse Level	Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	This course aims to acquaint students with the fundamental notions of Functional Analysis including normed linear spaces, linear maps, Hilbert spaces, the Hahn Banach theorem, weak topolojies, separable spaces, fixed point theorems						
Course Content	Normed linear spaces, linear maps, inner product spaces, Hilbert spaces, the Hahn Banach theorem, weak topolojies, separable spaces						
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	Elements of Functional Analysis, I. J. Maddox
2	Introductory Functional Analysis with Applications, Kreyszig

Week	Weekly Detailed Course Contents	
1	Theoretical	Normed linear spaces
	Preparation Work	Relevant part of course book should be read.
2	Theoretical	Normed linear spaces
	Preparation Work	Relevant part of course book should be read.
3	Theoretical	Linear maps
	Preparation Work	Relevant part of course book should be read
4	Theoretical	Linear maps
	Preparation Work	Relevant part of course book should be read
5	Theoretical	Inner Product Spaces
	Preparation Work	Relevant part of course book should be read
6	Theoretical	Hilbert spaces
	Preparation Work	Relevant part of course book should be read
7	Theoretical	Hilbert spaces
	Preparation Work	Relevant part of course book should be read
8	Theoretical	Hahn Banach theorem
	Preparation Work	Relevant part of course book should be read
9	Theoretical	Hahn Banach theorem
	Preparation Work	Relevant part of course book should be read
10	Intermediate Exam	Midterm Exam
11	Theoretical	Weak topolojies
	Preparation Work	Relevant part of course book should be read
12	Theoretical	Weak topolojies
	Preparation Work	Relevant part of course book should be read
13	Theoretical	Separable spaces
	Preparation Work	Relevant part of course book should be read
14	Theoretical	Separable spaces
	Preparation Work	Relevant part of course book should be read

15	Theoretical	Fixed point theorems
	Preparation Work	Relevant part of course book should be read
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 comprehend Normed spaces
2	To be able to comprehend Banach spaces
3	To be able to comprehend İnner product spaces
4	To be able to comprehend Hilbert spaces
5	To be able to use mathematical concepts in solving certain types of problems

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	4	4	4	4	4
P3	5	5	5	5	5
P9	4	4	4	4	4
P15	3	3	3	3	3