AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Divergent Series II								
Course Code	MTK551		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 introduce well known summability methods.								
Course Content	Elementary Tauberian theorems, Tauberian theorems, A tauberian theorem for Euler method, Fourier series, Convergence of Fourier series, Convergence tests, Cesaro summability of Fourier series, Abel-Poisson summability of Fourier series, Riemann's method of summation, Absolute convergence, Fourier transforms, Applications of summability to analytic continuation, the Borel exponential method, the Okada theorem.								
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	Divergent Series, G. H. Hardy
2	Summability theory and applications, R.E. Powell and S.M. Shah

Week	Weekly Detailed Course Contents	
1	Theoretical	Elementary Tauberian theorems
	Preparation Work	Relevant part of course book should be read
2	Theoretical	Tauberian theorems
	Preparation Work	Relevant part of course book should be read
3	Theoretical	A tauberian theorem for Euler method
	Preparation Work	Relevant part of course book should be read
4	Theoretical	Fourier series
	Preparation Work	Relevant part of course book should be read
5	Theoretical	Convergence of Fourier series
	Preparation Work	Relevant part of course book should be read
6	Theoretical	Convergence tests
	Preparation Work	Relevant part of course book should be read
7	Theoretical	Cesaro summability of Fourier series
	Preparation Work	Relevant part of course book should be read
8	Theoretical	Abel-Poisson summability of Fourier series
	Preparation Work	Relevant part of course book should be read
9	Theoretical	Riemann's method of summation
	Preparation Work	Relevant part of course book should be read
10	Intermediate Exam	Midterm Exam
11	Theoretical	Absolute convergence
	Preparation Work	Relevant part of course book should be read
12	Theoretical	Fourier transforms
	Preparation Work	Relevant part of course book should be read
13	Theoretical	Applications of summability to analytic continuation
	Preparation Work	Relevant part of course book should be read
14	Theoretical	The Borel exponential method
	Preparation Work	Relevant part of course book should be read

15	Theoretical	The Okada theorem
	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 see the relationships among the several summability methods
2	To be able to develop the capacity of posing and solving problems.
3	To be able to gain the skill of interpreting some interrelations among these concepts
4	To be able to use mathematical concepts in solving certain types of problems
5	To be able to develop analytical skills and apply to 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
P5	4	4	4	4	4
P7		4	4	4	4
P9	4		4	4	4
P15		2	2	2	2