

Department Department of Mathematics			Academic Year 2022-2023	Date 01/12/2022	
Course Unit Code MATH2106	Course Unit Title Real Analysis		Semester/Year Spring/ 2	Number of ECTS Credits 5	
Language of Instruction	Turkish				
Type of Course Unit	Elective				
Prerequisites and co-requisites	-				
Address of course	-				
Local Credit	Theoretical	Practical	Laboratory	Presentation	Project
4	4	0	-	-	-
Name of Lecturers	Professor Çiğdem BEKTAŞ				
Assistants	-				

Course content	Basic information about sets and functions, Series and countable sets, Ring and σ -ring, Algebra and σ -algebra, Measure, Outer measure, Lebesgue outer measure and Lebesgue measure, Measurable functions, Integrals of simple functions, Integrals of positive functions, Integral functions, Lebesgue integral, Relation between Lebesgue integral and Riemann integral.
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Weekly Detailed Course Contents	
Week	Topic
1	Basic information about sets and functions
2	Sequences and countable sets
3	Ring and σ -ring
4	Algebra and σ -algebra
5	Measures
6	Outer measure
7	Lebesgue outer measure and Lebesgue measure
8	Measurable functions
9	General application
10	Integrals of simple functions
11	Integrals of positive functions
12	Integrable functions
13	Lebesgue integral, Relation between Lebesgue integral and Riemann integral.
14	A brief evaluation of the course content and topics

Course Resources	1. M. Balçı, Reel Analiz 2000 Ankara 2. H.L. Royden , Real Analysis Second Edition,Macmillan Publishing Company Co. Inc. ISBN 0-02-979410-2 (International Edition) New York 3. Charalambos D. Aliprantis and Owen Burkinshaw, Principles of Real Analysis, Third Edition 1990.
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Assessment Methods and Criteria	In-Term studies	Quantity	Percentage (%)
	Mid-Term Exams	1	40
	Quizzes	-	-
	Assignments	-	-
	Projects	-	-
	Term assignment	-	-
	Laboratory	-	-
	Other	-	-
	Final exam	1	60

On Assessment Methods and Criteria	A grade of success; the relative evaluation system or evaluation of the instructor. In order to be taken into consideration in the courses in which the relative evaluation system and teaching staff's discretion are applied, the final exam score of the student must be at least YSAS. Students who fall below this score are considered to fail directly. For the courses that cannot be evaluated with the relative evaluation system, the letter grades of the success grades are determined by the consent of the instructor teaching the table by 100 points by the Senate using the distribution of the final grade of success. A student who has received a grade AA, BA, BB, CB or CC grade is deemed to have completed that course. A student who has received one of the grade DC or DD grades is deemed to have fulfilled that course condition. In order for a student who takes DD and DC letters to be counted as successful, the GMS (General Mean Score) must be at least 2.00. A student who receives a graded FF grade is considered to have failed that course.
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Percentage of Course Category (%)	Mathematics and Basic Sciences	100
	Computer Sciences	0
	Programming Design	0
	Social sciences	0

Course Outcome	The student will learn the main concepts and theorems related to the course, measurement theory, Lebesgue integral
Aims of the course	To create an infrastructure for students to solve problems related to measurement theory and Lebesgue integral.
The way of processing course	Face to face

Relation of the course with program outcomes				
Learning outcomes		1	2	3
1	To have advanced theoretical and applied knowledge in a way to prioritize the scientific approach supported by textbooks containing up-to-date information in the field, application tools and other resources			
2	Adapting and transferring the knowledge gained in the field to secondary education			
3	Ability to independently carry out an advanced study in the field			
4	Be aware of the necessity of lifelong learning and continuously improve their professional knowledge and skills.			
5	Using a foreign language at least at the European Language Portfolio B1 General Level, following the information in the field and being able to communicate with colleagues			
6	To be able to use information and communication technologies together with computer software at minimum advanced level of European computer license required by the field.			
7	Have the ability to make oral and written presentation in native language			
8	Having the ability to understand spoken English and use English at reading level			
9	To have the ability to assimilate mathematical concepts and understand the relationships between them, to recognize different aspects of the same concepts and relationships			X
10	To have the ability to define and formulate the relationships between items in non-mathematical disciplines in the language of mathematics.			X
11	To have the ability to use mathematical knowledge in different problems		X	
12	Having the ability to develop computer programs using mathematical knowledge			
Contribution of the course: 1:No 2:Partially 3:Completely				

Preparer: Professor Çiğdem BEKTAŞ
Preparation date: 01/12/2022