Kırıkkale University

FACULTY OF ARTS AND SCIENCES
MATHEMATICS

MAT4002		Real Analysis				

Semester	Course Unit Code	Course Unit Title		L+P	Credit	Number of ECTS Credits
8	MAT4002	Real Analysis		4	4	6

Mode of Delivery:
Face to Face
Language of Instruction:
Türkish
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
MATHEMATICS
Type of Course Unit:
Elective
Objectives of the Course:
To teach the fundamentals of the theory of infinite sets of real valued functions, measurable sets,measurable functions, Lebesgue integral to the concept of space. Square integrable functions
Teaching Methods and Techniques:
The theorems and concepts of the theory of real-valued functions .the concepts of measurement and analysis of the integral
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Prof.Dr. İshak AltunDr. Öğr. Üyesi Hatice A. HançerProf.Dr. Hakan Şimşek
Assistants:

Recommended or Required Reading	
Resources	Mustafa Balcı, Reel Analiz , Balcı Yay., 1998.,Burkinshaw, Aliprantis, Principles of Real Analysis, Academic Press,1998
	Lecture, Drilland Practice, Problem Solving, Discussion, Question and answer
	A.N., Kolmogorov ,S.V.,Fomin ,Introductory real analysıs, 1970.
	H.L.Royden, Real analysıs, 1968.

Course Category				
Mathmatics and Basic Sciences	:	Education	:	
Engineering	:	Science	:	
Engineering Design	:	Health	:	
Social Sciences	:	Field	:	

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Set sequences		
2	Liminf and limsup and their convergence		
3	Sigma ring and Sigma algebra		
4	Measurable sets		
5	Measure		
6	Outher measure		
7	Lebesgue outher measure and measure, Measurable functions		
8	Midterm		
9	İntegration of simple functions		
10	İntegration of positive functions		
11	İntegrable functions		
12	Lebesgue?s dominated convergence theorem		
13	Comparing Lebesgue integral with Riemann integral		
14	Lp spaces, L¥ spaces		
15	Lp spaces, L¥ spaces		

Course Learning Outcomes

No	Learning Outcomes
C01	Defines the concepts of infinite set, countable infinity and Continium set. Explain the limit and condensation point, closed and open sets and their structure. Calculates the measurement of open and

Program Learning Outcomes

No	Learning Outcome
P09	Independently carries out research in the field of Mathematical Sciences.
P08	Uses the ability of abstract thinking.
P07	Solves numerical, algebraic, geometric and spatial expressions, equations, functions and problems.
P12	Develops new ideas in the field of Mathematical Sciences.
P11	Updates their current knowledge in the field of Mathematical Sciences.
P10	Critically evaluates the knowledge and skills acquired in the field.
P03	Advanced undergraduate subjects will have the qualifications to carry out the work independently in partnership.
P02	The fundamental notions, theories and data, evaluating scientific methods, identify and analyze problems and issues encountered in discussions, makes recommendations based on research eviden
P01	Based on efficiencies gained by using materials related to mathematics in secondary education, is equipped with advanced knowledge.
P06	Interprets abstract mathematical concepts, including rings and abstract algebra, and critical reasoning.
P05	Interprets mathematical and statistical models such as formulas, functions, graphs, tables, and schematics.
P04	Can express mathematical information numerically, symbolically, graphically, verbally, and visually.

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	16	4	64
Hours for off-the-c.r.stud	14	4	56
Assignments	3	10	30
Presentation	0	0	0
Mid-terms	1	20	20
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	1	30	30
Total Work Load			**200**
ECTS Credit of the Course			**7**

Contribution of Learning Outcomes to Programme Outcomes

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	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12
All	4	5	4	4	4	5	4	4	4	4	4	5
C01	5	5	5	5	5	5	5	5	5	5	5	5