Kırıkkale University

FACULTY OF ARTS AND SCIENCES
MATHEMATICS

MAT2002		Analysis 4				
Semester	**Course Unit Code**	**Course Unit Title**		**L+P**	**Credit**	**Number of ECTS Credits**
4	MAT2002	Analysis 4		4	4	7

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:
Required
Objectives of the Course:
To teaching extremums of functions of several variables, multiple integrals and applications them, to analyze line and surface integrals.
Teaching Methods and Techniques:
functions of several variables, multiple integrals, line integrals and surface integrals.
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Prof.Dr. İshak ALTUN
Assistants:

Recommended or Required Reading

Resources	Mustafa BALCI, Matematik Analiz, Cilt II, Ertem Matbaası, Ankara, 2000.
	Berki YURTSEVER, Matematik Analiz Dersleri, Cilt I (ikinci kısım), Ekonomist Yayınevi , Ankara, 1981.
	J. A. FRIDY, Introductory Analysis, The Theory of Calculus, Harcourt Brace Jov. Inc., 1987.
	K.A. ROSS, Elementary Analysis, The Theory of Calculus, Springer Verlag, NewYork, 1980

Course Category

Mathmatics and Basic Sciences	:	100	Education	:	
Engineering	:		Science	:	
Engineering Design	:		Health	:	
Social Sciences	:		Field	:	

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Graphs, limit and continuity of functions of several variables		
2	Partial derivatives, the chain rule and exact differential		
3	The implicit function derivation and directional derivatives		
4	Taylor series of functions of two variables		
5	Finding extremum of functions of two variables		
6	Transformation of regions and vector fields		
7	Geometric meaning of partial derivatives		
8	Midterm Exam		
9	Evaluation of double integrals, change of variables in double integrals		
10	Applications of double integrals (finding area, volume and barycentre)		
11	Evaluation of triple integrals		
12	Change of variables in triple integrals (spherical and cylinderical coordinates)		
13	Applications of triple integrals (finding volume and center of mass)		
14	Line integrals, fundamental theorems of line integrals and applications		
15	Surface integrals, fundamental theorems of surface integrals and applications		

Course Learning Outcomes

No	Learning Outcomes
C01	Kısmi türevleri, kapalı fonksiyonların türevlerini ve yönlü türevleri öğrenir.
	İki ve üç katlı integrallerde uygulamalar yapar.

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	15	4	60
Hours for off-the-c.r.stud	15	4	60
Assignments	2	20	40
Presentation	0	0	0
Mid-terms	1	15	15
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	1	25	25
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	5	5	4	5	4	4	5	5	4	5	5	5
C01	5	5	5	5	5	5	5	5	5	5	5	5