REAL ANALYSIS II

1	Course Title:	REAL ANALYSIS II
2	Course Code:	MAT5102
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	none
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. OSMAN BİZİM
15	Course Lecturers:	Prof. Dr. Osman Bizim
16	Contact information of the Course Coordinator:	Uludağ Üniversitesi, Fen-Edebiyat Fakültesi Matematik Bölümü, Görükle Bursa-TÜRKİYE 0 224 294 17 57 / obizim@uludag.edu.tr
17	Website:	
18	Objective of the Course:	The aim of this course is to review student's undergradute analysis courses and to correct the deficiencies. So students can be su have succsessful in graduate studies.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	Learns measure and its applications.
	2	Learns measurable sets, measurable functions and the Lebesgue measure.
	3	Learns the Lebesgue integral and its properties.
	4	Learns Lp-spaces and convex functions.
	5	Learns Hilbert spaces, inner-product spaces and linear functionals.
	6	Learns orthonormal sets and trigonometric series.
	7	Learns the Fourier series of continous functions.
	8	
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	10	

21	Course Content:	

Course Content:	

Week	Theoretical	Practice
1	Set functions and their properties	
2	Measura function, measure space and their properties	
3	Construction the Lebesgue and the Borel measure and their properties	

4	Measurable functions	
5	Simple functions and their properties	
6	The Lebesgue integral of simple functions and their properties	
7	The Lebesgue covergence theorem and its applications	
8	The integral of complex functions and their properties	
9	The Riesz-Fischer theorem and its applications	
10	Lp-spaces and their properties	
11	Convex functions and their properties	
12	Hilbert spaces inner-product spaces and linear functionals.	
13	Orthonormal sets and trigonometric series and their properties	
14	Banach spaces and the Fourier series of continous functions.	

22	Textbooks, References and/or Other Materials:	[1] Principles of Mathematical Analysis, W. Rudin, [2] Real and Complex Analysis, W. Rudin, [3] Real Analysis, H. L. Royden, [4] Introduction to Real Analysis, W. F. Trench.

23	Assesment

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	5.00	70.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	14	5.00	70.00
Final Exams	1	43.00	43.00
Total Work Load			225.00
Total work load/ 30 hr			7.50
ECTS Credit of the Course			6.00

	Number	Duration (hour)
Quiz	0	0.00
Final Exam	1	100.00
Contribution of Term (Year) Learning Activities to Success Grade		0.00
Contribution of Final Exam to Success Grade		100.00
Measurement and Evaluation Techniques Used in the Course		

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0
ÖK2	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0
ÖK3	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0
ÖK4	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0

ÖK5	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0
ÖK6	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0
ÖK7	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0

LO: Learning Objectives   PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**