

## ABSTRACT MATHEMATICS II

1	Course Title:	ABSTRACT MATHEMATICS II	
2	Course Code:	MAT0506	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	2	
6	Semester:	3	
7	ECTS Credits Allocated:	4.00	
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. BASRİ ÇELİK	
15	Course Lecturers:	Doç. Dr. Atilla AKPINAR	
16	Contact information of the Course Coordinator:	basri@uludag.edu.tr 0224.2941762	
17	Website:		
18	Objective of the Course:	Provide an understanding about the importance of equivalence relations, equipollent sets and cardinal numbers in mathematics.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Recognize types of relation.
		2	Learns the equivalence relation, and prove the theorems on this subject.
		3	Learns the relationship between equivalence relations and functions.
		4	Recognizes the equipotent sets.
		5	Can solve the problems about equivalence relations and equipotent sets.
		6	Can make the operations about the cardinal numbers.
		7	Learns the ways to found Natural Numbers set using finite sets. Also learns countable and countable sets.
		8	Learns induction and the theorems which could be proved by inductive theorem.
		9	Learns combinatorial analysis, order relations, isomorphism of ordered sets, and can solve the problems with related to order relations and combinatorial analysis.
		10	
21	Course Content:		
		<b>Course Content:</b>	
Week	Theoretical	Practice	
1	Description of course. Finding a set of definitions.		
2	Relation types, equivalence relations.		
3	Equivalence relations and functions.		

4	Equipotent sets.	
5	Equivalence relations and equipotent sets problems.	
6	Cardinal numbers.	
7	Operations with cardinal numbers.	
8	Finite and infinite sets. Natural numbers.	
9	Midterm and feedback	
10	Examples of theorems could be proved by induction and induction.	
11	Combinatorial analysis.	
12	Order relations.	
13	Isomorphism of ordered sets.	
14	Combinatorial analysis and the problems of order relations.	

22	Textbooks, References and/or Other Materials:	<p>1)Soyut Matematik I, Basri Çelik, Dora Yayınevi, 2010, Bursa.</p> <p>2)Abstract Algebra, Roger Godement, Hermann Publishers, 1968, Paris.</p> <p>3)Soyut Matematik, Sait Akkaş, H. Hilmi Hacısalihoğlu, Zühtü Özel, Arif Sabuncuoğlu, gazi üniversitesi Yayın No:43, 1984, Ankara.</p>
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Activites		Number	Duration (hour)	Total Work Load (hour)
Midterm Exam	1	40.00	3.00	42.00
Practicals/Labs		0	0.00	0.00
Homework project	0	0.00	2.00	28.00
Homeworks		0	0.00	0.00
Projects	2	10.00	0.00	0.00
Field Studies		0	0.00	0.00
Success Grade Midterm exams		1	14.00	14.00
Others		14	1.00	14.00
Total Exams		100.00	22.00	22.00
Total Work Load				120.00
Course Total work load/ 30 hr				4.00
<b>24. ECTS /WORK LOAD TABLE</b>				
ECTS Credit of the Course				4.00

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	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0

ÖK5	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0
ÖK8	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0
ÖK9	0	0	0	0	0	4	0	3	0	0	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			