	METHODS OF A	RGUN	IENTATION AND PROOF					
1	Course Title:	METHO	DS OF ARGUMENTATION AND PROOF					
2	Course Code:	MAT3105						
3	Type of Course:	Optional						
4	Level of Course:	First Cyc	le					
5	Year of Study:	3						
6	Semester:	5						
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:	Doç. Dr. MENEKŞE SEDEN TAPAN BROUTIN						
15	Course Lecturers:							
16	Contact information of the Course Coordinator:	Y.Doç.Dr. Menekşe Seden TAPAN BROUTIN tapan@uludag.edu.tr 0 224 2942162 Uludağ Üniversitesi Eğitim Fakültesi, A Blok, İlköğretim Bölümü, 16059 Nilüfer, Bursa						
17	Website:							
18	Objective of the Course:	Conceptualizing mathematical proof methods and basic proof theories in didactics of mathematics, and making analyzes based on these theories.						
19	Contribution of the Course to Professional Development:							
20	Learning Outcomes:							
		1	Axiomatic structure of mathematics will be internalized.					
		2	Basic proof methods are analyzed and used					
		3	Differences between mathematical reasoning, explanation, argumentation and proof methods can be explained with a educational viewpoint.					
		4	The place and importance of proof in mathematical science can be explained.					
		5	Basic proof teaching theorems are learnt and articles related with these theorems are analyzed.					
		6						
		7						
		8						
		9						
		10						
21	Course Content:							
		Co	urse Content:					
Week	Theoretical		Practice					
1	Axiomatic structure in Maths, proving methods of proving	g and						

2	Direct proof, proof with deduction and examples	d its							
3	Proof-by-contradiction and contradict principle. Examples.	ion							
4	Proves with examples and reverse examples and their exercises.	xamples							
5	Place of proof in mathematical study theorems of basic proof teaching	and							
6	Mathematical reasoning, explanation argumentation and proof	,							
7	Development of mathematical consid of children and Van Heil Model	leration							
8	Scientific article research based on the of Van Heile	ne theory							
9	Proof structures of Duval and proof gradations of Balacheff								
10	Scientific article research based on th of Balacheff	ne theory							
11	The proof theory of Harel and Sowde concept of proof scheme	er and							
12	Scientific article research based on th of Harel and Sowder	ne theory							
13	Proof concepts of Hanna, Tall. Mario Batista	tti,							
14	Synthesis of all theories of proof								
Activit	es		Number		Duration (hour)	Total Work Load (hour)			
Theore	ical		Hanna, G. & Do	e Villiers,	₩. ⁰ (2012). Proof ar	권역 Peving in			
Practic	als/Labs		0	· · ·	0.00	0.00			
Self stu	dy and preperation		Hadrel, G. & Sov	wder, L. (109 98). Students' pr	စစ် <mark>ာ</mark> စငhemes.			
Homew	vorks		0		0.00	0.00			
Project	8		2803.		0.00	0.00			
Field S	tudies		0		0.00	0.00			
Midtern	n exams		of Research on	Mathem	att2c90Teaching and	12a00 ing,			
Others			0		0.00	0.00			
Final E	xams		discours, Anna	les de Di	20.000 ue et de Scie	200.50 Cognitives			
Total W	Vork Load					60.00			
Total w	ork load/ 30 hr		Spatial Reason	ning." In H	andbook of Resear	21.000n			
ECTS (Credit of the Course					4.00			
			Battista, M. I. & Clements, D. H. (1995). Geometry and proof. Mathematics Teacher, 88(1), 48–54. Balacheff, N. (1999). Apprendre la preuve. In: Sallantin J., Szczeciniarz J. J. (eds.) Le concept de preuve à la lumière de l'intelligence artificielle (pp.197–236). Paris: PUF. (Balacheff on 1987). Stylianides, A. J. (2007). Proof and Proving in School Mathematics, Journal for Research in Mathematics Education, 38(3), pp. 289-321.						
23	Assesment								
TERM L	EARNING ACTIVITIES	NUMBE R	WEIGHT						
Midtern	n Exam	40.00							
Quiz		0	0.00						

I lane work areis at																	
								0.0	0.00								
Final Exam 1								60.	60.00								
Total 2								100	0.00								
Contribution of Term (Year) Learning Activities to Success Grade								40.	40.00								
Contribution of Final Exam to Success Grade							60.	60.00									
Total								100	100.00								
Measurement and Evaluation Techniques Used in the Course							ne										
24 E0	CTS/	WO	RK L	OAD	TAB	LE											
25	25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS																
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ1 0	PQ11	PQ12	PQ1 3	PQ14	PQ15	PQ16	
ÖK1	5	2	3	1	5	1	5	1	0	0	0	1	0	0	0	0	
ÖK2	5	4	3	2	5	2	5	1	0	0	0	2	0	0	0	0	
ÖK3	5	5	3	4	5	2	5	1	0	2	4	5	0	0	0	1	
ÖK4	5	5	4	4	5	4	5	2	0	2	3	4	0	0	0	0	
ÖK5	5	2	5	3	5	5	5	3	0	4	2	3	0	0	0	0	
LO: Learning Objectives PQ: Program Qualifications																	
Contrib 1 v ution Level:		/ery	low	2 low 3			3	Medi	ium	4 High		5 Very High					