PROJECTIVE GEOMETRY

1	Course Title:	PROJECTIVE GEOMETRY
2	Course Code:	MAT4048
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	8
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:	-
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. Atilla AKPINAR
15	Course Lecturers:	Prof. Dr. Basri ÇELİK Doç. Dr. Fatma ÖZEN ERDOĞAN
16	Contact information of the Course Coordinator:	E-posta: aakpinar@uludag.edu.tr Telefon: +90 224 2941774 Adres: Uludağ Üniversitesi Fen-Edebiyat Fakültesi Matematik Bölümü 16059 Görükle-Bursa-TÜRKİYE
17	Website:	
18	Objective of the Course:	To learn the essentials of projective geometry which is one of the non-Euclidean geometries.
19	Contribution of the Course to Professional Development:	To gain the ability to think in a versatile way in solving problems they may encounter in mathematics or daily life by showing the existence of different geometries.
20	Learning Outcomes:	
	1	Knows the concepts of collinear points, coincides lines and the examples of non-Euclidean geometry.
	2	Knows the general information about affine planes and examples of affine planes.
	3	Learns the concept of division ring and field, sufficiently.
	4	Construct an affine plane from division ring.
	5	Learns the projective planes and their properties.
	6	Learn and understand the importance of the concept of duality in projective planes.
	7	Construct an projective plane from division ring.
	8	Learn the relation between the affine planes and projective planes.
	9	Knows the Desaguesian and Pappian projective planes and their fundamental properties.
	10	Knows the perspectivities, projectivities and central collineations.
21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	Description of course.	

2	Collinear points, coincides lines, parallel lines and the examples of non-Euclidean geometry.	
3	Affine planes and their properties, Moulton plane.	
4	The concept of division ring and field (sufficiently for lecture).	
5	Construction of affine planes from division rings.	
6	Projective planes and their properties.	
7	Principle of duality in projective plane and their importance.	
8	Construction the projective plane from division ring.	
9	Midterm and feedback	
10	Relations between the affine planes and projective planes. Subplanes.	
11	Desarguesian planes.	
12	Pappian planes.	
13	1-dimensional transformations in projective planes: perspectivities and projectivities.	
14	Central collineations.	

22	Textbooks, References and/or Other Materials:	1. Projektif Geometri, Prof. Dr. Rüstem Kaya, Anadolu Üniversitesi Yayınları, Yayın No:551, 1992, Eskişehir.

23	Assesment				
	TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**		
	Midterm Exam	1	40.00		
	Homework-project	0	0.00		
	Midterm exams	2	100.00		
	Final Exams				
	Total		100.00		
	Success Grade				
	Total				
	Course				

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	4.00	56.00
Homeworks	15	5.00	75.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	3.00	3.00
Others	0	0.00	0.00
Final Exams	1	4.00	4.00
Total Work Load			183.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

24	**ECTS / WORK LOAD TABLE**

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	2	5	1	4	5	1	1	3	3	2	0	0	0	0	0	0
ÖK2	3	4	1	2	4	1	2	2	2	1	0	0	0	0	0	0
ÖK3	1	5	1	3	5	1	2	3	1	1	0	0	0	0	0	0

ÖK4	2	4	1	2	4	1	2	2	2	2	0	0	0	0	0	0
ÖK5	2	5	1	2	5	1	1	2	2	1	0	0	0	0	0	0
ÖK6	1	4	1	3	4	1	2	3	3	1	0	0	0	0	0	0
ÖK7	3	5	1	3	5	1	3	2	2	2	0	0	0	0	0	0
ÖK8	1	3	1	2	4	1	3	3	2	1	0	0	0	0	0	0
ÖK9	2	4	1	4	4	1	2	2	3	1	0	0	0	0	0	0
ÖK10	1	5	1	3	5	1	1	2	2	1	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**