T.C.

ESKİŞEHİR OSMANGAZİ UNİVERSİTY

FACULTY OF SCIENCES

MATHEMATİCS AND COMPUTER SCIENCES DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
Non-Euclidean Geometries I	

Semester	Number of Course Hours per Week		Credit	ECTS
	Theory	Practice		
7	2	2		6

Course Category (Credit)				
Basic Sciences	Engineering Sciences	Design	General Education	Social
x				

Course Language	Course Level	Course Type
Turkish	Undergraduate	Elective

Prerequisite(s) if any	
Objectives of the Course	Learning axiomatic systems, Euclidean geometry axioms and some non-Euclidean geometry models
Short Course Content	Axiomatic systems and its properties, Abstract and incidence geometry, Metric and Pasch geometry, Protractor and neutral geometry, Euclidean geometry and its axioms, Hyperbolic geometry and its properties, Introduction to taxicab geometry, Some geometric concepts in taxicab geometry

Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1 Understanding axiomatic systems	2,3,9,13	1,5,10,11,12	A,D
2 To have knowledge about Euclidean and non-Euclidean geometries and to understand the differences between these geometries	2,3,9,13	1,5,10,11,12	A,D
3			
4			
5			
6			
7			
8			

***Teaching Methods** **1:**Expression, **2:**Discussion, **3:**Experiment, **4:**Simulation, **5:**Question-Answer, **6:**Tutorial, **7:**Observation, **8**:Case Study, **9:**Technical Visit, **10:**Trouble/Problem Solving, **11:**Induvidual Work, **12**:Team/Group Work, **13**:Brain Storm, **14:**Project Design / Management, **15:**Report Preparation and/or Presentation

****Measuring Methods** **A:**Exam, **B:**Quiz, **C:**Oral Exam, **D:**Homework, **E:**Report, **F:**Article Examination, **G:**Presentation, **I:**Experimental Skill, **J:**Project Observation, **K**:Class Attendance; **L**:Jury Exam

Main Textbook	Richard S. Millman, George D. Parker, Geometry: A metric approach with models
Supporting References	1. Eugene F. Krause, Taxicab Geometry: An Adventure in Non-Euclidean Geometry 2. Anton Petrunin, Euclidean plane and its relatives: A minimalist introduction
Necessary Course Material	

Course Schedule	
1	Undefined concepts and unproven propositions
2	Axiomatic system
3	Consistency, independence and completeness of axiomatic systems
4	Isomorphism of two axiomatic systems
5	Abstract and incidence geometry
6	Metric and Pasch geometry
7	Protractor and neutral geometry
8	Mid-Term Exam
9	Euclidean geometry and axioms
10	Historical background of non-Euclidean geometry
11	Hyperbolic geometry and its properties
12	Poincaré's upper half plane model
13	Poincaré's upper half plane model
14	Introduction to taxicab geometry
15	Taxicab geometry and its properties
16,17	Final Exam

Calculation of Course Workload			
Activities	**Number**	**Time (Hour)**	**Total Workload (Hour)**
Course Time (number of course hours per week)	14	4	56
Classroom Studying Time (review, reinforcing, prestudy,….)	14	2	28
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)	2	30	60
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam			
Studying for Mid-Term Exam			
Final Exam	1	2	2
Studying for Final Exam	1	40	40
		Total workload	**186**
		Total workload / 30	**186/30**
		Course ECTS Credit	**6**

Evaluation	
Activity Type	**%**
Homework	50
Bir öğe seçin.	
Bir öğe seçin.	
Final Exam	50
Total	100

RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)

NO	PROGRAM OUTCOME	Contribution
1	The ability to apply knowledges of Mathematics and Computer Sciences,	1
2	To have sufficient theoretical and practical knowledge of Mathematics at international level,	5
3	The ability of describing, modelling and solving of mathematical problems at Mathematics and related subjects,	5
4	The skill to solve and design a problem process in accordance with a defined target,	3
5	Skills to analyze data, interpret and apply to other datum and using these data on computer,	1
6	The skill to use the modern techniques and computational tools needed for mathematical applications,	3
7	The skill to make team work within the discipline and interdisciplinary,	4
8	The ability to improve oneself by following the developments on other modern, scientific and technological subjects as well as Mathematics and Computer Sciences,	2
9	The skill to communicate orally and in written way, in a clear and concise manner by having individual work skills and ability to independently decide and analytical thinking,	5
10	The skill to have professional and ethical responsibility,	1
11	The skill to have consciousness for quality issues and scientific research,	2
12	The skill to be sensitive to environmental issues related with problems and development of living area and consistent in the social relations,	1
13	Ability to solve problems in the working life faced to find an appropriate algoritms via mathematical modeling and to write computer programs,	5
14	The skill to developed design of software systems at different complex levels,	2
15	The credence of necessity of life-long learning and ability to apply the formation long-life learning.	1

LECTUTER(S)				
Prepared by	Ass. Prof. Temel Ermiş			
Signature(s)				

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