



## ESOGÜ Mathematics and Computer Sciences COURSE INFORMATION FORM

<b>SEMESTER</b>	Fall
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<b>COURSE CODE</b>	821617030	<b>COURSE NAME</b>	Geometric Structures I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Labratory	Credit	ECTS	TYPE	LANGUAGE
7	2	2	0	3	5	COMPULSORY (X) ELECTIVE ( )	Turkish

### COURSE CATAGORY

<b>Mathematics</b>	<b>Computer</b>	<b>Social Sciences</b>	
X			

### ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
	<b>MID-TERM</b>	1st Mid-Term	1
2nd Mid-Term			
Quiz			
Homework			
Project			
Report			
Others (.....)			
<b>FINAL EXAM</b>		1	60
<b>PREREQUIEITE(S)</b>	None		
<b>COURSE DESCRIPTION</b>	Affine spaces, Euclidean spaces, Introduction to transformations, Transformations of similarity.		
<b>COURSE OBJECTIVES</b>	The main of the course is to introduce the concepts and techniques involved in the basic topics listed in this lecture and to develop skills in applying those concepts and techniques to the solution of problems. The affine and Euclidean spaces are examined carefully based on the vector theory and a general introduction to the transformations are given.		
<b>ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION</b>	Gain analytical thinking and problem solving ability.		
<b>COURSE OUTCOMES</b>	The aim of this course is to teach thinking with transformations in geometry and to show how new geometries or systems are obtainable with using transformation.		
<b>TEXTBOOK</b>	İki ve Üç Boyutlu Uzaylarda Dönüşümler ve Geometrilere. Prof. Dr. H. Hilmi Hacısalihoğlu.		
<b>OTHER REFERENCES</b>	Transformation Geometry, George E. Martin.		
<b>TOOLS AND EQUIPMENTS REQUIRED</b>	None		

COURSE SYLLABUS	
WEEK	TOPICS
1	Affine spaces, - coordinate systems
2	Affine transformations
3	Affine subspaces
4	Affine subspaces
5	Euclidean spaces
6	Euclidean spaces
7	Euclidean subspaces ,Geometrical transformations, Inverse transformations
8	Combination of transformations, Transformation groups
9	Geometrical invariants
10	Transformations with linear equation
11	Transformations with linear equation
12	Some properties of motions
13	Translations and rotations
14	Reflections, reflections with translations, Similarity transformation
15,16	Final Exam

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

1:None. 2:Partially contribution. 3: Completely contribution.

**Instructor(s):** Prof. Dr. Özcan Gelişgen

**Signature:**

**Date:**