ESOGÜ Mathematics and Computer Sciences
COURSE INFORMATION FORM

SEMESTER	Spring

COURSE CODE	821618031	**COURSE NAME**	Geometric Structures II

SEMESTER	**WEEKLY COURSE PERIOD**			**COURSE OF**			
	Theory	**Practice**	**Labratory**	**Credit**	**ECTS**	**TYPE**	**LANGUAGE**
8	2	2	0	3	5	COMPULSORY (X) ELECTIVE ( )	Turkish

COURSE CATAGORY			
Mathematics	**Computer**	**Social Sciences**	
X			

ASSESSMENT CRITERIA			
MID-TERM	**Evaluation Type**	**Quantity**	**%**
	1st Mid-Term	1	40
	2nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report		
	Others (………)		
FINAL EXAM		1	60

PREREQUIEITE(S)	None
COURSE DESCRIPTION	Affine transformations, Projections, Projective transformations, Topological transformations.
COURSE OBJECTIVES	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 -, projective -, and topological transformations will be given and study in detail.
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Gain analytical thinking and problem solving ability.
COURSE OUTCOMES	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.
TEXTBOOK	İki ve Üç Boyutlu Uzaylarda Dönüşümler ve Geometriler. Prof. Dr. H. Hilmi Hacısalihoğlu.
OTHER REFERENCES	Transformation Geometry, George E. Martin.
TOOLS AND EQUIPMENTS REQUIRED	None

<table>
<tr><td colspan="2" align="center">COURSE SYLLABUS</td></tr>
<tr><td>WEEK</td><td>TOPICS</td></tr>
<tr><td>1</td><td>Affine group</td></tr>
<tr><td>2</td><td>General affine transformations</td></tr>
<tr><td>3</td><td>Affine properties</td></tr>
<tr><td>4</td><td>Axioms of affine geometry</td></tr>
<tr><td>5</td><td>Affine geometrical distance</td></tr>
<tr><td>6</td><td>Affine geometrical distance</td></tr>
<tr><td>7</td><td>Projections</td></tr>
<tr><td>8</td><td>Projective properties</td></tr>
<tr><td>9</td><td>Definition of a projective transformation</td></tr>
<tr><td>10</td><td>Projective transformations and projections</td></tr>
<tr><td>11</td><td>Projective transformations and projections</td></tr>
<tr><td>12</td><td>Projective geometry of the Euclidean plane</td></tr>
<tr><td>13</td><td>Topological transformations of the plane, Homeomorphisms of lines and circles</td></tr>
<tr><td>14</td><td>Homeomorphisms of the plane, Models of the plane</td></tr>
<tr><td>15,16</td><td>Final Exam</td></tr>
</table>

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:**