AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Basic Concepts in Geometry						
Course Code		MTE524		Couse Level		Second Cycle (Master's Degree)		
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To provide students to examine all axiomatic nature of geometry and enable them to comprehend the properties of plane figures						
Course Content		Definition of geometry, structure of geometry and geometry usage in real life. Explaining the axiom, undefined concept and theorem. Euclidean and non-Euclidean geometries, the basic axioms of Euclidean geometry. The relationships among points, line and plane concepts. The concept of angle, types of angle, equivalence of angle and equivalence axioms, applications related to angles. The definition of the concept of polygon. The definition of triangle, types of triangle, basic and assistant elements of triangle, equivalence axioms and theorems related to triangles, applications related to equivalences in triangles, similarity theorems related to triangles, applications related to similarity in triangles. To prove the theorems of some geometric concepts such as trapezoid, parallelogram, equilateral quadrilateral, rectangle, square, deltoid. Applications related to quadrilaterals. The concept of circle, theorems and proofs related to angle and length in circle, applications related to angle and length in circle. The properties of objects in space, applications related to area and volume of solid objects						
Work Placement		N/A						
Planned Learning Activities and Teaching Methods			Explanation (Presentation), Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)		Lec. Serhan ULUSAN						

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	70

Recommended or Required Reading

1	Atatürk, M.K. (1937) Geometri, Türk Dil Kurumu Yayınları, Ankara
2	Stakkestad J.M., Wyant L. (1986) Introduction to Geometry, Academic Press, Orlando
3	Tapan-Broutin, M.S. (2010) Bilgisayar Etkileşimli Geometri Öğretimi, Ezgi Kitabevi Yayınları

Week	Weekly Detailed Course Contents	
1	Theoretical	Definition of geometry, structure of geometry and geometry usage in real life. Explain axiom, undefined concept, theorem. Euclidean and non-Euclidean geometries, basic axioms of Euclidean geometry. The relationships between concept of point, line and plane
2	Theoretical	The concept of angle, types of angle, equivalence of angle and equivalence axioms, applications related to angles
3	Theoretical	Definition of triangle concept, , types of triangles, basic and assistant elements of triangle, equivalence axioms and theorems related to triangles, applications related to equivalences in triangles
4	Theoretical	Basic theorems and applcations related isosceles triangle, equilateral triangle, right-angled triangle
5	Theoretical	Similar triangles, similarity theorems, applications about similarity on triangles, metric relations on right-angled triangle
6	Theoretical	I., II. Thales Theorems, bisector theorem, Menelaus Theorem, Ceva Theorem
7	Theoretical	Definition of poligon concept, proof of related theorems as on quadrangle, parallelogram, equilateral quadrangle, rectangle, square, deltoid, trapezoid, isosceles trapezoid, applications related quadrangles
8	Intermediate Exam	Midterm Exam
9	Theoretical	Concepts of circle and disk, angle, arc, chord, tangent, theorems and proofs related length on circle and disk, applications related angle and length on circle and disk
10	Theoretical	Inscribed quadrilateral, calculation on length of circle and arc, tangent quadrangle, common tangent of two circle, power of point according to circle, concept of geometrical place, basic drawings (as drawing triangle given some elements)
11	Theoretical	Areas of polygonal regions, areas of polygons, areas of regular polygons, calculations on disk, properties of matters in space, solid matter, prisms, right and oblique prisms
12	Theoretical	Areas and volumes of prisms, pyramids, areas and volumes of pyramids, applications related prisms and pyramids

13	Theoretical	Conic, area and volume of conic, cutting pyramids, area and volumes of cutting pyramids, applications related conic and cutting pyramids
14	Theoretical	Sphere, slice of sphere, concept of sphere cover, their area and volumes, applications related sphere
15	Theoretical	Modern geometry theorems
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	3	112
Midterm Examination	1	38	2	40
Final Examination	1	46	2	48
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Explain and apply definition of geometry, its structure and geometry usage in real life
2	Solve problems related definition of triangle concept, kinds of triangles, basic and assistant elements of triangle, equivalence axioms and theorems about triangles, applications related to equivalences in triangles
3	Solve problems related similar triangles, similarity theorems, applications about similarity on triangles
4	Express relations between concepts of line, plane and point
5	Explain concepts of angle, polygon, triangle, disk and their applications
6	Explain the properties of objects in space, applications related to area and volume of solid objects

Programme Outcomes (Mathematics Education Master)

1	Learns sufficient theoretical knowledge in the field of mathematics education
2	Uses theoretical knowledge in educational settings
3	Integrates mathematics education knowledge with the other disciplines and products functional knowledge
4	Uses information and communication technologies efficiently in conceptual learning
5	Finds scientific solutions to the problems in the field of mathematics education
6	Evaluates the knowledge critically in the field
7	Participates team projects in the mathematics education field
8	Shares national and international data in the field of mathematics education
9	Comprehends and evaluates science-technology-society and mathematics interactions
10	Comprehends mathematics under the ethical values and takes account of ethical considerations
11	Follows the current development in the mathematics education field
12	Develops strategical plans and evaluates them in the context of quality processes
13	Adopts lifelong learning strategies to his/her studies

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5	L6
P1	4	3	2	2	2	3
P2	2	1	1	1	2	2
P3	3	1	2	1	1	1
P5	2	3	3	4	2	3
P6	3	2	1	1	2	3
P9	1	1	1	1	1	1
P13	1	1	1	1	1	1