COURSE DESCRIPTIONS

Faculty	Science and Information Technology				
Department	Mathematics			**NQF level**	7
Course Title	Euclidean & Non-Euclidean Geometry	**Code**	505261	**Prerequisite**	Math 505102
Credit Hours	3	**Theory**	2	**Practical**	2
Course Leader	Prof. Mohammad W. Alomari	**email**	malomari@jadara.edu.jo		
Lecturers	Prof. Mohammad W. Alomari	**emails**			
Lecture time	08:30- 10:00 Sun,Thrs	**Classroom**	D411+ online		
Semester	Second	**Production**	2012	**Updated**	2024
Type of Teaching	☐ Face to Face ■ Blended				

Short Description
Welcome to geometry! As you know from previous schooling, geometry is all around you. I hope this year you will learn about and appreciate the beauty of it. We will study the properties of many geometric figures and develop your abstract and logical thinking through deductive and inductive reasoning techniques. I expect you to put forth your best effort, enjoy the journey of learning, and have a great year!
Course Objectives
▪ Understand the basic idea of Euclidean Geometry. ▪ Understand the basic idea of non- Euclidean Geometry.
Learning Outcomes
A. Knowledge - Theoretical Understanding
a1. Understand all the theorems and axioms in Euclidean and non- Euclidean Geometry.
B. Knowledge - Practical Application
a2. Understand all the application examples in Euclidean and non- Euclidean Geometry.
C. Skills - Generic Problem Solving and Analytical Skills
b1. Analyze the given data to understand the requirement.
D. Skills - Communication, ICT, and Numeracy
b2. Sketch the figures which needs through solving example.
E. Competence: Autonomy, Responsibility, and Context

Teaching and Learning Methods
■ Face to Face Lectures ☐ Brain Storming ■Using Video ■Discussions ☐ Problem solving
Assessment Methods
☐ Discussion and Interaction ■Quiz ■Homework ■ Midterm Exam ☐■ Final Exam

Course Contents					
W	**Hours**	**CLOs**	**Topics**	**Teaching & Learning Methods**	**Assessment Methods**
1	**5**	a1	**Lines, Angels and Triangles** **1.1** Historical background of geometry. **1.2** Undefined terms of geometry. **1.3** Lines segments. **1.4** Circles. **1.5** Angels **1.6** Triangles **1.7** Pairs of angles	Lecture in the class room+ Distance learning using (Microsoft Teams).	Assignments, Exams, Quizzes, Discussion and Interaction
2	**5**	a1, b1	**Methods of Proof** **2.1** Proof by deductive reasoning. **2.4** Determining the hypothesis and conclusion	Lecture in the class room+ Distance learning using (Microsoft Teams).	Assignments, Exams, Quizzes, Discussion and Interaction
3	**5**	a1, b1	**Congruent Triangles** **3.1** Introduction to congruence. **3.2** Isosceles and equilateral triangles.	Lecture in the class room+ Distance learning using (Microsoft Teams).	Assignments, Exams, Quizzes, Discussion and Interaction
4	**5**	a1, b1	**Parallel lines, Distances and Angle Sums** **4.1** Parallel lines. 4.3 Sum of the measure of angles of triangles.	Lecture in the class room+ Distance learning using (Microsoft Teams).	Assignments, Exams, Quizzes, Discussion and Interaction
5	**5**	a1, b1	**Parallelograms, Medians and Midpoints** **5.2** Parallelograms. **5.4** Medians and Midpoints.	Lecture in the class room+ ONLINE by Microsoft Team	Assignments, Exams, Quizzes, Discussion and Interaction
6	**5**	a1, b1, c1	**Circles** **6.1** The circle: Circle relationships.	Lecture in the class room+ ONLINE by Microsoft Team	Assignments, Exams, Quizzes, Discussion and Interaction

7-8	**5**	a1, b1, c1	.**Similarity and Trigonometry**	Lecture in the class room+ ONLINE by Microsoft Team	Assignments, Exams, Quizzes, Discussion and Interaction
9-11	**5**	a1, b1	**Regular Polygons and The Circle** 10.1 Regular polygons. 10.2 Relationship of segments in regular polygons of 3, 4 and 6 sides. 10.3 Area of regular polygon. 10.4 Ratios of segments and areas of regular polygons. 10.7 Areas of combination figures.	Lecture in the class room+ Distance learning using (Microsoft Teams).	Assignments, Exams, Quizzes, Discussion and Interaction
12-13	**5**	a1, b1, c1	**Analytic Geometry** 12.1 Graphs. 12.6 Areas in analytic geometry. 12.7 Proving theorems in analytic geometry.	Lecture in the class room+ Distance learning using (Microsoft Teams).	Assignments, Exams, Quizzes, Discussion and Interaction
14	**5**	a1, a2, b1, c1	**Review**	Lecture in the class room+ Distance learning using (Microsoft Teams).	Assignments, Exams, Quizzes, Discussion and Interaction
15			**Final Exam**		

Infrastructure	
Textbook	B. Rich & C. Thomas, Schaum Outlines Geometry. 4th ed., McGraw-Hill Company.
References	Greenberg, *Euclidean & Non-Euclidean Geometry*, 3rd edition. Freeman Publishers.
Required reading	Barnett Rich, *Theory and problems in geometry*, 2nd edition. Schaum's outline
Electronic materials	
Other	

Course Assessment Plan						
Assessment Method	**Grade**	**CLOs**				
		a1	**a2**	**b1**	**b2**	**c1**
First(Midterm)	**30%**	15	5	10	0	0
Second (if applicable)						

Final Exam		**40%**	5	10	10	15	0
Coursework		**30%**					
Coursework assessment methods	Assignments	**10%**	5	5			
	Case study	**-**					
	Discussion and interaction	**10%**			10		
	Group work activities	**-**					
	Labtests and assignments	**-**					
	Presentations	**-**					
	Quizzes	**10%**				10	
Total		**100%**	25	20	30	25	

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Plagiarism
Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code). Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism.

Chair of Mathematics Department: Dr. Tarq Qawasemeh

Course Leader: Prof. Dr. Mohammad W. Alomari