T.C.

ESKİŞEHİR OSMANGAZİ UNİVERSİTY

FACULTY OF SCIENCES

MATHEMATİCS AND COMPUTER SCIENCES DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
Mathematics, Nature and Art II	

Semester	Number of Course Hours per Week		Credit	ECTS
	Theory	Practice		
8	2	2	-	6

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

Course Language	Course Level	Course Type
Turkish	Undergraduate	Compulsory

Prerequisite(s) if any	
Objectives of the Course	This course aims for students to learn the fundamental topics of Differential Geometry 2, as well as to understand the implications of these topics and general mathematics on various disciplines, and to develop new projects.
Short Course Content	In this course, we will study topics in Differential Geometry 2 and explore the applications of mathematics across all disciplines, including Nature and Art.

	Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1	It aims to solve problems related to the topic of surfaces.	1,2,3,4,5	1,2,5,6,10,13	A, D
2	It aims to solve problems related to the shape operator, the first fundamental form, and the second fundamental form.	1,2,3,4,5	1,2,5,6,10,13	A, D
3	It aims to learn the concepts and examples of asymptotic curvature, normal curvature, and geodesic curvature.	1,2,3,4,5	1,2,5,6,10,13	A, D
4	It aims to learn the concepts and examples of Gaussian curvature and mean curvature.	1,2,3,4,5	1,2,5,6,10,13	A, D
5	It examines the applications of mathematics to all disciplines, including nature and art.	1,2,3,4,5	1,2,5,6,10,13	A, D
6	It aims to undertake projects related to the topics studied.	1,2,3,4,5	1,2,5,6,10,13	A, D
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	Diferential Geometry, Barret O'Neill
Supporting References	Anne Burns, Gemetry and Nature . Maria Mannone , Mathematics, Nature and art.
Necessary Course Material	

Course Schedule	
1	surfaces
2	Shape operatör
3	Principal curvature
4	Asymptotic line, geodesic line, Umbilic point
5	Mean curvature
6	Gauss Curvature
7	Examples
8	Mid-Term Exam
9	Mapple applications on surfaces
10	Mathematical article reviews related to nature and art
11	Mathematical article reviews related to nature and art
12	Mathematical article reviews related to nature and art
13	Fractal geometry applications
14	Project work
15	General works
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	4	56
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam			
Studying for Mid-Term Exam			
Final Exam			
Studying for Final Exam			
		Total workload	
		Total workload / 30	
		Course ECTS Credit	**6**

Evaluation	
Activity Type	**%**
Mid-term	50
Quiz	
Homework	
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	Ability to understand the relationship between mathematics and related disciplines	4
2	To possess sufficient knowledge in both theory and application of mathematics at an international level	4
3	Ability to define and solve mathematical problems in mathematics and related fields	4
4	Ability to analyze and design the problem-solving process towards a defined goal	5
5	Ability to keep up with developments in mathematics, computer science, and other scientific, technological, and contemporary topics to enhance oneself	5

LECTUTER(S)				
Prepared by	Prof. Dr. Nevin Gürbüz			
Signature(s)				

Date:26.07.2024