AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Differentiable Manifolds II								
Course Code	MTK578		Couse Level		Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The main purpose of this course is to acquaint students with knowledge of Differentiable Manifold and to use this knowledge.								
Course Content	Submanifolds, The Lie algebra of vector fields on a manifold, Integration on the manifolds, Stokes Theorems, Tangent bundle, Gauss and mean curvature, structure equations								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

Recommended or Required Reading	
1	Boothby,William M. An İntroduction to Differentiable Manifolds and Riemannian Geometry. Academic Press,New York,1975
2	Brickell,F., Clark,R. Differentiable manifolds, Windson House, Condon S.W.1

Week	Weekly Detailed Course Contents	
1	Theoretical	Define manifold
2	Theoretical	Construct the topology of a manifolds
	Preparation Work	Solve the problems and examples
3	Theoretical	The Lie algebra of vector fields on a manifold
	Preparation Work	Solve the problems and examples
4	Theoretical	Differentiable maps between manifolds
	Preparation Work	Solve the problems and examples
5	Theoretical	Integration on the manifolds
	Preparation Work	Solve the problems and examples
6	Theoretical	Stokes Theorems
	Preparation Work	Solve the problems and examples
8	Theoretical	Differentiation on Riemannian Manifolds
	Preparation Work	Solve the problems and examples
9	Theoretical	Tangent bundle
	Preparation Work	Solve the problems and examples
10	Theoretical	Curvature
	Preparation Work	Solve the problems and examples
11	Intermediate Exam	Midterm
12	Theoretical	Gauss and mean curvature
	Preparation Work	Solve the problems and examples
13	Theoretical	Structure equation
	Preparation Work	Solve the problems and examples
14	Theoretical	Solve the problems about what he has learn
15	Theoretical	Solve the problems about what he has learn
	Preparation Work	Solve the problems and examples
16	Final Exam	Final exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	1	20	2	22
Midterm Examination	1	40	2	42
Final Examination	1	50	2	52
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To be able to define differentiable manifold
2	To be able to define Lie algebra of vector fields on a manifold
3	To be able to acquire Integration on the manifolds
4	To be able to acquire Tangent bundle
5	To be able to acquire Gauss and mean curvature

Programme Outcomes *(Mathematics Master)*	
1	To be able to have an adequate theoretical and practical domain knowledge.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use theoretical and practical domain knowledge gained in the field of Mathematics.
4	To be able to interpret knowledge from different disciplines integrating knowledge in the field of mathematics and produce new information.
5	To be able to define, analyse, model and to solve the problems by scientific methods in Mathematics.
6	To be able to conduct a math related specialistic study independently.
7	To be able to develop new strategic approaches to solve problems occurred in unforeseen and complex math-related applications by taking responsibility.
8	To be able to lead in situations that require solving problems related to the mathematics.
9	To be able to criticize his/her knowledge and skills acquired in the field mathematics.
10	To be able to transfer his/her ideas and suggestions for solutions to problems by supporting quantitative or qualitative data verbally and in writing.
11	To be able to communicate both orally and written in a foreign language.
12	To be able to use computer hardware and information technologies with software required by Mathematics.
13	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and being able to support the development of social, scientific, cultural and ethical values.
14	To be able to develop mathematics-related strategies, policies and operational plans, and to evaluate the results obtained within the framework of quality processes.
15	To be able to use his/her knowledge in the field of mathematics and practical problem-solving skills in interdisciplinary 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
P1	5	5	5	5	5
P2	1	1	1	1	1
P3	5	5	5	5	5
P4	1	1	1	1	1
P6	1	1	1	1	1
P9	3	3	3	3	3
P15	4	4	4	4	4