

THEORY OF TANGENT AND COTANGENT BUNDLES

1	Course Title:	THEORY OF TANGENT AND COTANGENT BUNDLES	
2	Course Code:	MAT6329	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	1	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. CENGIZHAN MURATHAN	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	cengiz@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	Learn bundle theory.	
19	Contribution of the Course to Professional Development:	The student learns lift theory.	
20	Learning Outcomes:		
		1	Learn tanjan bundle theory
		2	Learn complete ant vertical lift
		3	Learn horizontal lift
		4	Learn Sasalk metric on tanjant bundle
		5	Learn cotanjant bundle
		6	Learn vertical and horizontal lift of forms
		7	
		8	
		9	
		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Tanjant bundle		
2	Vertical lift and complete lift		
3	Lift derivations		
4	Lie derivatievs		
5	Horizontal lifts of functions and vector fields		
6	Horizontal lifts of tensor fields		
7	Almost complex structures in a Tanajant bundle		

8	Metrics on tanjant bundle	
9	Cotanjant bundle	
10	complete lifts of forms	
11	Comple lifts of Derivations on Cotanjant bundle	
12	Almost complex structures in the cotanjant bundle	
13	Prolangations of tensor fields	
14	Jet bundles	

23	Assesment
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Midterm Exam	0	0.00
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Home work-project	0	0.00
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Total	1	100.00
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Success Grade	
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Total	100.00
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Course			

Activites	Number	Duration (hour)	Total Work
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Theoretical	14	3.00	42.00
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Self study and preparation	11	11.00	121.00
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Projects	0	0.00	0.00
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Midterm exams	0	0.00	0.00
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Final Exams	1	7.00	7.00
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Total work load/ 30 hr			6.00
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25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME
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	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
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ÖK2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			