

DIFFERENTIAL AND INTEGRAL CALCULUS II

1	Course Title:	DIFFERENTIAL AND INTEGRAL CALCULUS II	
2	Course Code:	MAT1090	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	4.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. AHMET TEKCAN	
15	Course Lecturers:	Öğr. Gör. Dr. Betül GEZER	
16	Contact information of the Course Coordinator:	Uludağ Üniversitesi, Fen-Edebiyat Fakültesi Matematik Bölümü, Görükle Bursa-TÜRKİYE 0 224 294 17 51 tekcan@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	The aim of the course is to make the students gain the some algebraic properties on vectorial analysis including, vector, line and plane in R^3 , vector valued functions, limits and continuity of functions of several variables, sequences of functions and series of functions, partial derivatives, differentiable, chain rule, tangent plane, linearization, derivative with direction, gradient vector, double integrals and their applications, Fubini theorem, polar coordinates, triple integrals and their applications, cylindrical and spherical coordinates, arc integrals and their applications, Green theorem, surface integrals and their applications, Stokes and Divergens-Gauss theorems	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Learn the definitions of vector, line, plane and some properties of them and learn the vector functions, limit, continuity, derivates and integrals.
		2	Learn the limit and continuity on functions of several variables.
		3	Learn the sequences and series of functions.
		4	Learn the partial derivatives and chain rule on mutli variable functions.
		5	Learn the Taylor series expansion on two variable functions.
		6	Learn the derivatives with directions and gradient vector on mutli variable functions.
		7	Learn to solve the problems of maximum-minimum of functions on mutli variable functions.
		8	Learn to calculate double integrals and their application areas.

	9	Learn to calculate triple integrals and their application areas.
	10	Learn to calculate arc and surface integrals and their application areas, Green, Stokes and Divergens-Gauss theorems.
21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Overview of basic concepts on lessons	Solutions in questions of the subjects of theoretical
2	Vector, line, plane in R^3 and some properties of them	Solutions in questions of the subjects of theoretical
3	Vector valued functions, limits, continuity, derivative, integral and curvature of them	Solutions in questions of the subjects of theoretical
4	Multi variable functions, limits and continuity of two variable functions	Solutions in questions of the subjects of theoretical
5	Sequences and series of functions	Solutions in questions of the subjects of theoretical
6	Partial derivatives, differentiable and chain rule on multi variable functions, tangent plane and linearization on two variable functions	Solutions in questions of the subjects of theoretical
7	Taylor series expansion of two variable functions	Solutions in questions of the subjects of theoretical
8	Midterm exam	
9	Derivatives with direction and gradient, maximum-minimum problems of multi variable functions and Lagrange multiple method	Solutions in questions of the subjects of theoretical
10	Double integrals and their applications, Fubini theorem, mass, center of weight, moment of inertia	Solutions in questions of the subjects of theoretical
11	Change of variables in double integrals and polar coordinates	Solutions in questions of the subjects of theoretical
12	Triple integrals and their applications, cylindrical and spherical coordinates	Solutions in questions of the subjects of theoretical
13	Arc integrals and their applications, Green's theorem and its applications	Solutions in questions of the subjects of theoretical
14	Surface integrals and their applications, Stokes and Divergence-Gauss theorems	Solutions in questions of the subjects of theoretical
22	Textbooks, References and/or Other Materials:	
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBER
Midterm Exam		40.00
Quiz		0.00
Home work-project		0.00
Final Exam		60.00
Total		100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		
24	ECTS / WORK LOAD TABLE	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	4.00	56.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	5.00	70.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	12.00	12.00
Others	0	0.00	0.00
Final Exams	1	14.00	14.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	5	3	5	5	4	4	3	4	4	3	5	0	0	0	0
ÖK2	5	5	4	5	5	2	4	4	3	4	4	5	0	0	0	0
ÖK3	5	5	3	5	5	3	4	4	3	4	4	5	0	0	0	0
ÖK4	5	5	4	5	5	2	4	4	3	4	4	5	0	0	0	0
ÖK5	5	5	3	5	5	4	4	3	4	4	3	5	0	0	0	0
ÖK6	5	5	4	5	5	2	4	4	3	4	4	5	0	0	0	0
ÖK7	5	5	3	5	5	3	4	4	3	4	4	5	0	0	0	0
ÖK8	5	5	4	5	5	2	4	4	3	4	4	5	0	0	0	0
ÖK9	5	5	3	5	5	3	4	4	3	4	4	5	0	0	0	0
ÖK10	5	5	4	5	5	2	4	4	3	4	4	5	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low		3 Medium		4 High		5 Very High							