

	Course name: MATH211 Advanced Calculus I		Department: Mathematics				Semester
	Methods of Education						Credit (ECTS)
	Lecture	Recitation/ (Etud)	Lab	Exams	Homework/ Quiz	Other	Total
56	28	0	54	50	112	300	10
Language	English						
Compulsory/Elective	Compulsory						
Prerequisites	MATH 112 Calculus II						
Weekly Detailed Course Contents	Weeks	Subjects					
	1	<ul style="list-style-type: none"> Vectors and Coordinate Geometry in 3-space 					
	2	<ul style="list-style-type: none"> Planes and lines in 3-space Quadric surfaces Cylindrical and spherical coordinates 					
	3	<ul style="list-style-type: none"> Vector functions of one variable Curves and parametrizations (in 3-space) 					
	4	<ul style="list-style-type: none"> Functions of several variables Limits and continuity 					
	5	<ul style="list-style-type: none"> Partial derivatives 					
	6	<ul style="list-style-type: none"> Higher-order derivatives 					
	7	<ul style="list-style-type: none"> The chain rule 					
	8	<ul style="list-style-type: none"> Linear approximations, differentiability and differentials 					
	9	<ul style="list-style-type: none"> Gradients and directional derivatives 					
	10	<ul style="list-style-type: none"> The gradient in three and more dimensions 					
	11	<ul style="list-style-type: none"> Implicit functions 					
	12	<ul style="list-style-type: none"> Extreme values of functions defined on restricted domains 					
	13	<ul style="list-style-type: none"> Lagrange multipliers 					
	14	<ul style="list-style-type: none"> Parametric problems 					
Course Objectives	<p>The purpose of this course is to</p> <ul style="list-style-type: none"> teach how to solve how to solve problems in differential calculus of functions of several variables. illustrate the concepts and results of differential calculus of several variables. 						
Learning Outcomes and Competences	<p>Upon completion of this course students will be able to</p> <ul style="list-style-type: none"> analyze the concept of multivariable functions as well as their limits, partial derivatives. apply the technical tools to solve the problems related to applications of partial differentiation. 						

Textbook and /or References	<p>Textbook :</p> <ul style="list-style-type: none"> • R. A. Adams, C. Essex, Calculus A Complete Course, Ninth edition, Pearson. <p>References:</p> <ul style="list-style-type: none"> • R. Silverman, Calculus with Analytic Geometry, Prentice Hall. • J. E. Marsden, M.J. Hoffman, Elementary Classical Analysis, W. H. Freeman 		
Assessment Criteria		If any, mark as (X)	Percentage (%)
	Midterm Exams	X	30
	Quizzes	X	10
	Homeworks		
	Projects		
	Term Paper		
	Laboratory work		
	Other		
	Final Exam	X	60