

	Course name: MATH211 Advanced Calculus I		Department: Mathematics		Semester		
					3		
	Methods of Education					Credit (ECTS)	
	Lecture	Recitation	Lab	Exams	Homework/ Quiz	Other	Total
56	28	0	54	50	112	300	
Language	English						
Compulsory/Elective	Compulsory						
Prerequisites	MATH 112 Calculus II						
Weekly Detailed Course Contents	Weeks	Subjects					
	1	Vectors and Coordinate Geometry in 3-space					
	2	Planes and lines in 3-space, quadric surfaces					
	3	Vector functions of one variable, curves and parametrizations (in 3-space)					
	4	Functions of several variables, limits and continuity					
	5	Partial derivatives					
	6	Higher-order derivatives					
	7	The chain rule					
	8	Linear approximations, differentiability and differentials					
	9	Gradients and directional derivatives					
	10	The gradient in three and more dimensions					
	11	Implicit functions					
	12	Extreme values of functions defined on restricted domains					
	13	Lagrange multipliers					
	14	Parametric problems					
Course objectives	The purpose of this course is to • teach 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	Upon completion of this course students will be able to: • 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	Textbook: R. A. Adams, C. Essex, Calculus A Complete Course, Ninth edition, Pearson. References: G. B. Thomas, M. D. Weir, J. Hass, Thomas' Calculus, Thirteenth Edition, Pearson. J. Stewart, Calculus, Seventh Edition, Brooks/Cole, Cengage Learning. 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