

		UNIVERSITY OF EAST SARAJEVO Faculty of Technology Zvornik					
		Study programme: Chemical Engineering and Technology					
		Cycle I		Year I			
Course title		Mathematics 2					
Department							
Course code		Course status		Semester		ECTS	
04-1-009-2		Compulsory		II		6	
Teacher		Boban Marinković, PhD, full professor					
Teaching assistant		Boban Marinković, PhD, full professor					
Number of hours/ teaching workload (per week)			Individual student workload (in hours per semester)			Student workload coefficient S₀	
Lectures	Auditory exercises	Laboratory exercises	Lectures	Auditory exercises	Laboratory exercises	S₀	
3	2	0	45	45	0	1	
3*15 + 2*15 + 0*15 = 60 h			3*15*1.40 + 2*15*1.40 + 0*15*1.40 = 90				
Total course workload 75 + 105 = 180 hours per semester							
Learning outcomes		<p>After finishing the course, students will be able to:</p> <ol style="list-style-type: none"> 1 use mathematical tool and apply to technical and technological disciplines 2. demonstrate and utilize the knowledge of the quantifications of processes and occurrences and graphical presentations of functional dependences 3. analyse and present solutions of problems and obtained results. 					
Prerequisites							
Teaching methods		Lectures, auditory exercises, seminar paper.					
Syllabus outline per week		<ul style="list-style-type: none"> • Factorization of polynomial, Rational zeroes of polynomial. Decomposition of rational functions into simple fractions. • Primitive function. Indefinite integral. Table of integrals. Basic properties of indefinite integrals... Integration by substitution. Integration by parts. • Integration of rational and irrational functions. Integration of trigonometric functions. • Definition, existence and basic properties of Riemann integral. • Newton-Leibnitz formula. Integrals with perturbation limit. Integration by substitution in the Riemann integral. • Integration by parts. Application of integrals in geometry. • Point. Neighbourhood of a point in R and in R_n. Functions of several variables. Graph of functions of two variables. • Surfaces of second order. Sphere. Ellipsoid. Elliptic paraboloid. Hyperboloid. Hyperbolic paraboloid. Cylindrical and cone surfaces. Limits and continuity of functions of several variables. Mid-term test/Colloquium. • Partial derivative. Differentiability and total differential of functions of several variables. • Derivatives and differentials of high order. Chain rule. Taylor's formula. Extremum of functions of several variables. • Differential equation. Solution of differential equation. First order differential equations. General, particular and singular solution. Examples. Homogeneous equation. • Linear equation and the equation of total differential. Orthogonal trajectories. • High order differential equations. Lowering the order of the equation. Linear equations of high order. • Sum of series. Geometric series. Cauchy's criteria of convergence. Series with positive terms. Criteria of convergence. • Absolute and conditional convergence. Dedekind, Dirichlet, Leibnitz and Abel criteria of convergence. Mid-term test/Colloquium. 					
Obligatory reading							
Author		Title, publisher			Year	Pages	
Uščumlić, M., Miličić, P.		Elementi više matematike 1, Naučna knjiga, Beograd.			1990		

Uščumlić, M., Miličić, P.	Zbirka zadataka iz više matematike 1, Naučna knjiga, Beograd.	1989		
Additional reading				
Author	Title, publisher	Year	Pages	
Tomić, M.	Matematika, Svjetlost, Sarajevo	1989		
Pap, E., Takači, Đ.,	Analiza 1, PMF Novi Sad	2003		
Obligations, assessment methods and grading system	Type of student evaluation		Grade points	Percentage
	Pre-exam obligations			
	Attendance		6	6 %
	Mid-term test I		32	25 %
	Mid-term test II		32	25 %
	Final examination			
	Final examination (oral)		30	30 %
Total		100	100 %	
Web page	www.tfzv.ues.rs.ba			
Date	2023			