



UNIVERSITY OF SHKODRA

“Luigj Gurakuqi”

FACULTY OF NATURAL SCIENCES
MATHEMATICS DEPARTMENT

SUBJECT'S PROGRAM “ MATHEMATICS 1 “ (FOR THE ECONOMICS DEPARTMENT)

ACADEMIC'S YEAR EDUCATIONAL PLAN	2022 -2023
YEAR:	FIRST
SEMESTER :	FIRST
LECTURES :	15 Weeks X 3 hour/week
SEMINAR :	15 Weeks X 2 hour/week
CREDITS :	
PEDAGOGUE	Irma KOPLIKU

SUBJECT'S OBJECTIVES

- To recognise the concepts matrix, determinant, their properties and actions
- To recognise RVS (RVS), (RES), L.P and LV systems and the basics of these spaces with their corresponding theorems.
- To recognise the concepts of function, limit, the functions continuity, derivative, differential and integral.
- To build correctly graphs of different types of functions exponential, logarithmic etc and to draw conclusions about the functions from different graphs.
- To recognise the concept of the series and their convergence.

TABLE OF CONTENTS

- Main knowledge of mathematical logic and community.
- Absolute value of real numbers. Ranking system and Cartesian product of communities.
- The meaning of matrix. The collection of matrices and matrix multiplication with real numbers.
- Matrices multiplication. Transposed matrix. Square matrix.
- Determinant's meaning. The properties of determinants. Triangulated determinant. The inverse matrix.
- Matrix's rank and the inverse matrix's metering.
- Finding the solution of linearequations system. Creamer's rule. The Gauss method.
- The meaning of the real vectorial space (RVS). RVS's properties. Linear dependence of vectors. RVS basics and the cores of vectors system.
- The meaning of the real Euclidean space (RES). Vector's length. The angle between vectors. The real Euclidean space's basics.
- The function's meaning (the reflection's). Numerical functions.actions with numerical functions. Composite functions. Injection, surjection, bijection. The riverse function. Archfunctions.
- Understanding the limit of numerical functions. Infinite limits. Sided limits. Properties of the numerical finction's limit. Metering the numerical function's limit. Nondefined shapes. Metering the numerical composite finction's limit. Equivalent functions.

- The meaning of the numerical function's continuity. Highlights of rupture. Asymptotes of the numerical function's graph. Inverse numerical function's continuity.
- Understanding of the numerical function's derivate and its properties.
- Composed numerical function's derivate. Inverse numerical function's derivate . L'hospital's rule.
- Numerical function's differential. Allegations of defferential metering. Monotony,extremes and the numerical function's flexibility. Studying the numerical function and building its graph.
- Understanding of the numerical function with two variables, its limit and continuity.
- Partial darivates and the numerical function with two variables's differential.
- The numerical function with two variables's extremes. Building the empirical formulas with the small squaes method.
- Indefinite integral. The integration of some special integrals. Definite integral. Generic integral.
- Understanding the numerical range and its limit. Numerical subrange.
- Understanding of the numerical series. Numerical series with non negative cells. Numerical series with random cells. Alternative series.
- Understanding of the functional series. Polynomial series. Decomposition of numerical functions in polynomial series

Literature

- Basic literature: MATEMATIKA 1, Fatos Kopliku, Irma Kopliku, 2009.
- Helping literature: MATEMATIKA , Thoma Mitre, Omer Stringa, Bashkim Ruseti, 2007

Subject's Pedaogue

Msc. Irma **KOPLIKU**

**Approved by
Department's Director**

Dr . Sidite **DURAJ**