Course Title	Mathematics II
Course Code	MAT 102
Course Type	Compulsory
Level	Undergraduate
Year / Semester	Year 1 / Semester 2
Teacher's Name	ROMANA NOVAKOVIC

ECTS	6	Lectures / week	2	Laboratories / week	1

Course Purpose and Objectives	This course aims to provide the skills for implementation of the mathematical knowledge to the problems of economics and business. The main objective of this course is to provide students advanced mathematical tools that are necessary for understanding specific topics related to finance. Students should be able to use the statistical software R-programming to compute matrices and others.
Learning Outcomes	Upon successful completion of this course, students should be able to: ▪ Solve problems that are applications of sequences and series in economics and finance. ▪ Understand how mathematical tools and techniques are useful in financial and economic theory. ▪ Recognize the role of quantitative methods in decision making. ▪ Apply mathematical methods and tools to problem-solving using R-programming. ▪ Explain the mathematical solutions using financial and economic theory.

Prerequisites	NONE	Required	NONE

Course Content	▪ Sequences and series Sequences, geometric series, applications in finance (simple and compound interest). ▪ Systems of linear equations Recognize, graph, and solve system of linear equations, applications of system of linear equations. ▪ Matrices

	Operations with matrices, properties of matrix operations, the inverse of a matrix, applications of matrix operations.
	▪ Determinants
	The determinant of a matrix, evaluation of a determinant using elementary operations, properties of determinants, introduction to eigenvalues, applications of determinants.
	▪ Linear programming
	Problem formulation, graphical solution, applications of linear programming models.
	▪ Eigenvalues and eigenvectors
	▪ Find the eigenvalues and corresponding eigenvectors, applications of eigenvalues and eigenvectors
Teaching Methodology	This course will be delivered as a combination of interactive lectures, handouts, in-class problem-solving exercises as well as practice in computer laboratory using a statistical software package. Students will apply mathematical methods and tools to economic and business problems.
Bibliography	▪ Elementary Linear Algebra Larson Ron and Falvo David C. Houghton Miffin Harcourt 6th edition 2009 ▪ Mathematics of Economists and Business Werner Frank and Sotskov Yuri Routledge 2006 ▪ Quantitative Methods for Business Anderson David R., Sweeney Dennis J., Williams Thomas A., Camm Jeffrey D., Cochran James J., Fry Michael J and Ohlamann Jeffrey W. South-Western Cengage Learning 2013 ▪ Mathematics for Economics and Business Jacques, I. Pearson 9th edition 2018 ▪ Numerical Linear Algebra with Applications Using Matlab William Ford Academic Press

	2014
Assessment	Participation 10% Midterm Exam 30% Homework 10% Final Exam 50%
Language	English