UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION	
Study Program	Mechanical Engineering
Study Module (if applicable)	-
Course Title	Mathematics 1
Level of Study	☒Bachelor ☐ Master's ☐ Doctoral
Type of Course	☒ Obligatory ☐ Elective
Semester	☒ Autumn ☐ Spring
Year of Study	I
Number of ECTS Allocated	7
Name of Lecturer/Lecturers	Radović M.Ljiljana, Živković S. Dragan S.
Teaching Mode	☒ Lectures ☒ Group tutorials ☐ Individual tutorials ☐ Laboratory work ☐ Project work ☐ Seminar ☐ Distance learning ☐ Blended learning ☐ Other

Purpose and Overview (max. 5 sentences)

The aim of the course is systematization and upgrade of high school knowledge relating to mathematical logic and sets, polynomials, vector algebra and differential and integral calculus of real functions of one variable; acquiring new knowledge of linear algebra, analytic geometry and calculus.
Students acquire knowledge of the basics of mathematical analysis, algebra and analytic geometry required for successfully understanding and mastering the technical professions subjects.

Syllabus (brief outline and summary of topics, max. 10 sentences)

Outline: After completing this course, students should have developed a clear understanding of the fundamental concepts of linear algebra and single variable calculus as well as a range of skills allowing them to work effectively with the concepts.
Summary of topics: 1) Fundaments of mathematics logic, sets and algebraic structure. 2) Systems of linear algebraic equations and matrix algebra. 3) Analytic geometry, geometric vectors, vector space (three-dimensional Euclidean space), equations of lines and planes in space. 5) Real function of one variable (limit, continuity, derivative, differential, differentiability; higher derivatives). 6) Fundamental Theorems of Differential calculus. 7) Application to local and global extreme values and graphing. 8) Definite and indefinite integration, techniques of integration; 9) The fundamental theorem of calculus. 10) Applications to Geometry: area, volume and arc length. Improper integrals.

Language of Instruction

☒Serbian (complete course) ☐ English (complete course) ☐ Other _____ (complete course)

☐Serbian with English mentoring ☐Serbian with other mentoring _____

Assessment Methods and Criteria

Pre exam Duties	Points	Final Exam	Points
Activity During Lectures	5	Written Examination	Max. 60 (depending on Teaching Colloquia)
Practical Teaching (Homework)	5	Oral Examination	30
Teaching Colloquia	60	Overall Sum	100
*Final examination mark is formed in accordance with the Institutional documents			