SYLLABUS

1. Course title:

Mathematics I

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(●) Mandatory ( ) Elective

6. Prerequisites:

None

7. Class restrictions:

None

8. Duration / semester:

1 2

9. Weekly contact hours:

9.1. Lectures:	3
9.2. Seminars:	2
9.3. Laboratory/Practice classes:	0

10. Faculty:

Mechanical Engineering

11. Department/study program:

Production, Energy, Mechactronics Engineering

12. Lecturer:

Dr. sc. Mirela Garić-Demirović

13. Lecturer's e-mail:

mirela.garic@untz.ba

14. Web site:

www.pmf.untz.ba

15. Course aims:

-help students appreciate the use of mathematics as a form of communication;
-help students acquire a range of mathematical techniques and skills and to foster and maintain the awareness of the importance of accuracy
-make Mathematics relevant to the interests and experiences of students by helping them to recognize Mathematics in their environment
-cultivate the ability to apply mathematical knowledge to the solution of problems which are meaningful to students
-prepare students for the use of Mathematics in further studies

16. Learning outcomes:

At the end of the semester /course, the students ,who continued to perform their duties throughout the academic year, are expected to be able to:
-apply matrix theory and determinants in solving linear algebraic equation systems as well as self-use of some parts of materials on technical problems, e.g. vector algebra and analytical geometry.
-calculate the function output regardless of which function is the default.
-to know how to test the behavior of the function and draw the graph function.
-to accelerate the acquisition of knowledge from other subjects, primarily maths II and III.

17. Course content:

Algebraic structures. Field of real numbers and some of its subsets. The principle of mathematical induction. Complex numbers, definitions, algebraic, trigonometric and Euler form. Operation in the set C. Moivre formula. Elements of linear algebra: matrix, matrix equations, determinants. The linear equations, general theory. The linear form, the matrix, Kronecker-Capelli theorem. Elements of vector algebra, vectors, scalars and operations. Vector space. Analytic geometry in space. Lines and flats. Numeric sequences. Number of e. Real functions of one variable: limited, monotony and periodic functions. Limit value of real functions of real variable. Limes functions. Operations with limits. Continuity functions. Differential calculus of real functions of a real variable. The definition of derivatives. Rules of differentiation. Geometric meaning of statements. In by the higher order differentials. Fundamental theorems of differential calculus. L'Hospital theorem. Application.

18. Learning methods:

Direct and interactive method.
-Lectures with and without the use of multimedia resources with active participation and discussion of students.
-Auditorial exercises.
-Active student learning and consultation with subject assistant and subject teacher

19. Assessment methods:

During the semester, students have to pass two tests: Test 1 and Test 2. At both tests a student can achieve a maximum of 25 points. Tests are made in writing and contain the 5 tasks. The first test is done in mid-semester and includes previously done material while the second test works at the end of the semester and includes the second part of the material. In order to obtain a passing grade in the course the student has to suspect both tests have won the minimum 25 points. The final exam is written in combination with oral examination consists of theoretical questions and examples and tasks. On the final exam student can win a maximum of 5 ° points. In order to obtain a passing grade in the course a student on the final exam must win a minimum of 20 points. A student who after tests and final exam did not win the minimum 54 points coming on makeup exam consisting of two parts, the first in which the student works jobs from the subject treated in lectures and exercises, and that total carries 50 points and on which it is necessary to win a minimum of 25 points to access the second part of the makeup exam on which receives the test based on the principle of final exams, then the possible maximum of 50 points. In order for a student to pass his repeat examination must achieve a cumulative 54 points, ie. the sum of the points of the first and second part of the makeup exam.
Rewrite: If the student is committed misconduct (copied, interfere with other work, ...) on any aspect of assessment (tests, final exams, ...) it will be removed from the said assessment and his work in this case shall not score.

20. Assessment components:

<53% mark 5 (F)
54%-63% mark 6 (E)
64%-73% mark 7 (D)
74%-83% mark 8 (C)
84%-93% mark 9 (B)
94%-100% mark 10 (A)
Total: 100

21. Required reading list:

1. S. Drpljanin, Matematika, Tuzla, 1997.
3. Dragan Jukić, Rudolf Scitovski, Matematika I, Osijek, 1998.
3. P. M. Miličić, M. P. Uščumlić, Zbirka zadataka iz matematike I i II, Beograd, 2002.

22. Web sources:

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session:

01.06.2015.