# SYLLABUS

**1. Course title:**

MATEMATICS

**2. Code:**

**3. Cycle of study:**

1

**4. ECTS credits:**

6

**5. Type of course:**

(•) Mandatory ( ) Elective

**6. Prerequisites:**

No prerequisites

**7. Class restrictions:**

No class restrictions

**8. Duration / semester:**

1 1

**9. Weekly contact hours:**

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

**10. Faculty:**

Faculty of Technology

**11. Department/study program:**

Agronomy

**12. Lecturer:**

**13. Lecturer's e-mail:**

**14. Web site:**

www.tf.untz.ba

**15. Course aims:**

- enable students to acquire basic mathematical knowledge, which is stated in the course content
- develop a sense of logical and visual perception of phenomena and problems
- mastering a percentage account
- the acquisition of knowledge from linear algebra with the aim of applying the solution to the system of linear equations
- acquisition of knowledge in the field of differential and integral calculus of functions of one variable and training for application and in other teaching subjects
- to know the basic facts and methods of differential calculus of functions of one variable and to apply them in testing of functions

**16. Learning outcomes:**

At the end of the semester, successful students will be able to:
- perform a percentage account
- apply matrix theory and determinants in solving linear algebraic equations
- know the basic facts and methods of differential account of the functions of one variable and to know how to apply them in the function testing
- know the basic facts and methods of integral calculus of functions of one variable

**17. Course content:**

Percentage Account. Matrices and determinants. Solving the system of linear algebraic equations. Real functions of one variable. Limit value of real function of real variable. Continuity of function of one variable. Differential calculus of the function of real variable (the term of the first derivative, geometrical and physical interpretation of the derivative, derivative of parametric default function, differential of function, basic theorems of differential calculus, L'Hôpital's rules). Testing of functions by derivation. Integral account of function of the real variable (the term of indefinite integral, shift method and method of partial integration; definite integral). Application of definite integral.

**18. Learning methods:**

The most important learning methods in the subject are:
- lectures and technique of active learning with active students participation and discussion;
- auditorial exercises where the students with the help of the assistant and independently solve the tasks.
The following activities of successful learning are planned: observation and reflection, creation of abstract concepts and generalization. Learning styles are preferred: logical-mathematical, visual style, auditory and verbal.

**19. Assessment methods:**

After half of the semester, students take the writing test, which includes previously treated topics with lectures and exercises. The test consists of 5 tasks from the content taught. Each correct assignment is scored with 5 points, ie maximum 25 points can be achieved. After the end of the semester students take the writing test, which includes processed topics with lectures and exercises from the second part of the semester. The test consists of 5 tasks from the content taught. Each correct assignment is scored with 5 points, ie maximum 25 points can be achieved. All students take both tests on the subject at the same time, thereby achieving uniformity of the level of knowledge that is being tested, as well as the conditions under which the student takes the exam. For a continuous activity on lectures and exercises throughout the semester, student can achieve 0 to 2 points. The final exam is written or verbal. On the final exam a student answers four questions from the program of the subject treated in lectures and exercises. The maximum number of points a student can achieve on the final exam is 48 points. All forms of assessment are recognized as cumulative exam if the achieved result is positive after each individual test and is at least 50% of the total predicted and / or required knowledge and skills. In order for a student to pass the subject, he/she must have a minimum of 54 cumulative points, of which at least 24 points on the final exam. A student who does not score a minimum of 54 points after completing the exam, completes a correctional exam consisting of two parts, the first of which the student is doing the lessons from lectures and exercises, totaling 50 points and for which he needs to win minimum 25 points to access the second part of the correctional exam, based on the principle of the final exam, ie with a maximum possible 48 points. In order for a student to pass a correctional exam, he must achieve 54 cumulative points in the sum of the points of the first and second part of the correctional exam.

**20. Assessment components:**

The assessment of the exam is based on the total number of points the student has obtained by fulfilling the pre-requisites and passing the exam according to the quality of the acquired knowledge and skills and contains a maximum of 100 points and is determined according to the following scale:
Test I from 0 to 25 points
Test II from 0 to 25 points
Student activity from 0 to 2 points
Final exam from 0 to 48 points.

**21. Required reading list:**

Dedagić, F. , Šabanac, Z. (2014.) Matematika za agronome. Sarajevo: Univerzitet u Sarajevu
Drpljanin, S. (1997.) Matematika. Tuzla: Univerzitet u Tuzli.
Mesihović, B., Arslanagić, Š. (2002.) Zbirka riješenih zadataka iz matematike sa osnovama teorije. Sarajevo
Miličić, P. M., Uščumlić, M. P. (1981.) Zbirka zadataka iz više matematike I. Beograd: Naučna knjiga.

**22. Web sources:**

**23. Applicable starting from the academic year:**

2016/2017.

**24. Adopted in the Faculty/Academy session:**