SYLLABUS

1. Course title:

Mathematics III

2. Code:

MAT3

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

◉ Mandatory   ○ Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester:

1   3

9. Weekly contact hours:

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

10. Faculty:

Faculty of Electrical Engineering

11. Department/study program:

Electrical Engineering and Computer Science

12. Lecturer:

Enes Duvnjaković, assoc. prof. Amra Rekić-Vuk

13. Lecturer's e-mail:

enes.duvnjakovic@untz.ba, amra.rekic@untz

14. Web site:

15. Course aims:

One of the course aim is to get some knowledge from the area of the higer mathematics. Besides, course should make students more sensitive for logically and visually understanding of the problems and phenomenons. They shpuld be able to understand physical phenomenons and to solve some problems by usong mathematical models and skills. On of the aims is also to expand the knolewdge from the previous mathematical courses.

16. Learning outcomes:

At the end of the semestar succesfull students who continuously fulfiled their obligations will :
-widen knowledge from new areas that they havn't study yet
-get some knowledge and skills of the applied mathematics during analysis of some physical and engineering problems.

17. Course content:

Sequences of the complex numbers. Notion of the function of complex variable. Limit and continuity. Notion and properties of the derivation of the function of complex variable. Cauchy-Riemman conditions. Notion and properties of the integral of the function of complex variable. Cauchy theorem about the integral of regular function and some corrolaries. Basic Cauchy integral formula. Generalized Cauchy inetgral formula. Notion of the primitive function. Morero theorem. Liouvill theorem. Series of the complex numbers. Convergence criteria. Notion of the series of the complex functions. Convergence criteria. Continuity for uniforlmy convergent series theorem. Integration theorem. Weierstrass Regularity theorem. Power series in the complex form. Convergence. Taylor series of the function of the complex variable. Laurent series. Singular points of the complex function. Notion and properties of the residuum. Cauchy residuum theorem. Fourier and Laplace transformation. Spaces of the functions. Notion of the sistem of functions. Fourier series. Aproximation by the trigonometric polynomial. Complex form of the Fourier series. Notion of the Fourier transformation. Notion of the Laplace transformation. Properties of the Laplace transformation. Inverse and Laplace transformation of the periodic function. Application on differential and integral equations.

18. Learning methods:

-Direct lecture about the teaching subject
-interactive working with students during solving examples and problems.

19. Assessment methods:

Pre-exam obligations during the course students do in the written form.
Final exam can be done in the written form, or in the spoken form or combining two of them.

During the semestar two partial checking in the form of tests are done, Test 1 and Test 2.
After processing first half of the course Test 1 is done. And after processing the other half of the course Test 2 is done.
These tests consist of problems from the areas of study covered in lectures and exercise classes up to that point. They carry 25 points each and they are pre-exam obligations.
Final exam: the final exam aims to check knowledge from the entirety of the course and carries 50% of the final mark awarded. Final exam carry 45 points.

For the atendence student can get most 5 points.

20. Assessment components:

The following is the grading scale, showing the points, numerical grade, descriptive grade and letter grade:
0-53 5 (five) fail F
54-63 6 (six) satisfactory E
64-73 7 (seven) good D
74-83 8 (eight) very good C
84-93 9 (nine) excellent B
94-100 10 (ten) outstanding A

21. Required reading list:

1. M.Vuković, Teorija funkcija kompleksne promjenljive, PMF Sarajevo, 2007.
2. D.S.Mitrinović, J.D.Kečkić; Matematika II, Nauka, Beograd, 1994.
3. M. Tomić, Matematika II, Svjetost Sarajevo, 1981.
4. P. M. Miličić, M. P. Uščumlić, Zbirka zadataka iz više matematike II, Naučna knjiga Beograd, 1981.

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2016/2017

24. Adopted in the Faculty/Academy session:

04.04.2016