SYLLABUS

1. Course title:

Statistical Theory in Telecommunications

2. Code:

TK201

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

◉ Mandatory   ◯ Elective

6. Prerequisites:

[MAT1] Mathematics I

7. Class restrictions:

8. Duration / semester:

1   4

9. Weekly contact hours:

9.1. Lectures:	3
9.2. Seminars:	1
9.3. Laboratory/Practice classes:	1

10. Faculty:

Faculty of Electrical Engineering

11. Department/study program:

Electrical Engineering and Computer Science

12. Lecturer:

Ph.D. Nermin Suljanovic, full prof.

13. Lecturer's e-mail:

nermin.suljanovic@untz.ba

14. Web site:

(max. 50 characters)

15. Course aims:

Gain knowledge about probability theory and statistics necessary for analysis and design of digital telecommunication systems.

16. Learning outcomes:

Student will learn basic principles of probability theory and statistics, probability distribution and become capable to link this knowledge with real problems in telecommunications, solve problems in telecommunications requiring probability, learn how to categorize and describe stochastic processes, calculate autocorrelation function and spectral content of random signals, compute response of LTI systems to random signals.

17. Course content:

Random experiment. Axioms of probability. Statistical independence. Conditional probability. Total probability theorem. Random variable. Probability distributions. Moments. Probability distributions for two or more random variables. Continuous distributions (uniform, normal, log-normal, Rayleigh). Discrete distributions (uniform, binomial, geometric, negative binomial, Poisson). Random process. Random signals. Stationarity. Autocorrelation. Ergodicity. Power spectrum density. Response of LTI systems on random signals.

18. Learning methods:

Lecturing with projected presentations and necessary derivations on blackboard, with active student participation. Seminars include problem solving and use cases. Laboratory is based on numerical simulations.

19. Assessment methods:

Test and homeworks during semester and final exam.

20. Assessment components:

Midterm test and homeworks are 60% of the final grade. The final written test is 40%.

21. Required reading list:

- N. Suljanović, A. Gogić, A. Mujčić, "Statistička teorija telekomunikacija", Tuzla, 2015.
- M. H. Degrot, M. J. Schervish, "Probability and Statistics", Addison-Wesley, 2012.
- Douglas C. Montgomery, "Applied Statistics and Probability for Engineers", 2003.

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2016/17

24. Adopted in the Faculty/Academy session:

04.04.2016