

SYLLABUS

1. Course title:

Measurements in Telecommunications

2. Code:

TK303

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course: Mandatory Elective**6. Prerequisites:**

[TK203] Fundamentals of communications

7. Class restrictions:**8. Duration / semester:**

1

7

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:

The goal of this course is to explain the basics of instruments and the size measured in the field of telecommunications, perform basic experimental measurements of electric and non-electrical quantities in telecommunications, understand the basic principles of measurement and process engineering approach to the application of measuring equipment in the design and implementation of telecommunication equipment and / or maintain their quality in real operating conditions.

16. Learning outcomes:

knowledge of basic electrical measurements, understand difference between traditional electrical measurements and communication measurements, calculation of measurement error and confidence intervals, measuring procedures for work with oscilloscope, spectral analyzer and vector network analyzer, measurement procedure for channel characteristic determination, implement measurements in optical and radio communication systems, measured data processing and preparation of measurement visualization.

17. Course content:

Fundamentals of Measurement in Telecommunications. Signal generators. Analysis of the signal. AD / DA conversion. Using a digital oscilloscope and multimeter to measure. Measurements in the spectral domain. Scalar and vector measurements. Measurement of frequency and power of RF and microwave signals. Measurement of noise characteristics. Reflektometrija. Measuring the parameters of signals in broadcasting systems. Measurements of the cable and optical systems. Measurements in digital communication systems. Measurements of performance of computer networks. Automation of measurements.

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 experimental sessions and software tools for communication measurements.

19. Assessment methods:

Two tests during semesters and final test.

20. Assessment components:

Two tests during semester are 60%.of the final grade The final written test is 40%.

21. Required reading list:

Kamilo Feher, Telecommunications Measurements, Noble-Scitech, 1997
J.Dunlop, D.G. Smith, Telecommunications engineering, CRC Press Inc, 1994
M. A. Halim, Adaptive Array Measurements in Communications, Artech House Publishers; 1 edition, 2001

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