SYLLABUS

1. Course title:

Design of Telecommunication Networks

2. Code:

TK104

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 8

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:

PhD Suad Kasapovic, Associate Prof.

13. Lecturer's e-mail:

suad.kasapovic@untz.ba

14. Web site:

www.fe.untz.ba

15. Course aims:

The course will focus on the design, implementation, analysis, and evaluation of large-scale networked systems.

16. Learning outcomes:

- Become familiar with the objectives and basic instruments for network management.
- Familiary with standardization and regulation in telecommunications networks.
- Describe the possibilities of virtualization, isolation and security issues in the virtualized environment.
- Explain the principles, advantages and challenges of solutions in the cloud.
- Describe testing, optimizing and documenting network.

17. Course content:

Project: definition, specificity, structure, types and examples. The life cycle of the project. The objectives of the project. Risks. Struturirana division of project activities. Network diagram. Determining the resources on the project. Project management and project documentation. Standardization and regulation in telecommunications networks. Analysis of the performance of the existing network and network traffic. Analysis of the structure of packet nodes and expected performance networks. Design logical network: network topologies, addressing and numbering, selection of switching and routing protocols, development strategies of network security and management. Designing the physical network: selection of technologies and devices of the local network and the wider area. Testing, optimizing and documenting network. Monitoring and user management; accounting, authorization and authentication. Example of project IoT and telematic project. Viewing the problem of the design of cable distribution systems, broadcasting systems and wireless systems.

18. Learning methods:

- Lectures using multimedia resources, and the active participation of students.
- Creating a tasks and work on the realization of individual and group project assignments.
- Preparation and presentation of individual and group seminar papers.

19. Assessment methods:

I Continuous Assessment (60 %)
- The test on the midterm (40%)
- Project, assignments, seminar (20%)

II Final exam (40%)
Students in writing correspond to the theoretical questions and solve problems from the processed content of the course.

20. Assessment components:

54-63: mark 6 (six)
64-73: mark 7 (seven)
74-83: mark 8 (eight)
84-93: mark 9 (nine)
94-100: mark 10 (ten)

21. Required reading list:

- Priscilla Oppenheimer, Top-Down Network Design, Ciscopress, 2011.
- Mor Harchol-Balter, Performance Modeling and Design of Computer Systems –Queueing Theory in Action, Cambridge, 2013.
- Mohammad Azadeh, Fiber Optics Engineering, Springer, 2009.

22. Web sources:

www.fe.untz.ba

23. Applicable starting from the academic year:

2016/2017.

24. Adopted in the Faculty/Academy session:

04.04.2016