

SYLLABUS

1. Course title:

Switching Systems

2. Code:

TK103

3. Cycle of study:

1

4. ECTS credits:

6

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

[TK005] Telecommunication networks

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 aims to present students basic concepts of switching, the role of commutation systems in the telecommunication network, the basics of design of commutation system, connection of switching elements and network traffic, as well as software support for switching systems.

16. Learning outcomes:

- Describe the steps to solve the problem of multiple access.
- Analyze and explain the algorithms and routing protocols, routing tables and configure routers.
- To discuss the concepts and "building blocks" of today's communication networks for data transfer, such as switches, routers, and cabling.
- To analyze the influence of different topologies, applications and devices on the network performance.
- Describe how the frames are forwarded to the Ethernet network.

17. Course content:

The connection between switching and transmission systems. Basic principles of design package commutation. Performance analysis of switch. Principles for switching multicast, multirate and multimedia services. Management and configuration of switching devices. Selected technology optical switching. Virtualization of the network infrastructure. VLAN, VRF. VPN. MPLS concept. Tunneling. Architecture of software switching. Switching and routing in the cloud. Resource allocation and load balancing switching devices. Traffic engineering. Synchronization and signaling. Example implementation of softswitch solutions.

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:

Soung C. Liew, Tony T. Lee, Soung Liew, Tony Lee, Principles of Broadband Switching & Networks, Wiley-Interscience, 2010.
Tarek S. El-Bawab, Optical Switching, Springer, 2010.
Mirko Škrbić, Komutacioni sistemi, ETF Sarajevo, 2005.

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