SYLLABUS

1. Course title:

Mobile Telecommunications

2. Code:

TK205

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

[TK101] Signals and Systems, [TK102] Fundamentals of Electronics

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:

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 aim of the course is to present theoretical and practical knowledge in the field of mobile and wireless networks.

16. Learning outcomes:

- Describe the basic components that tend to be immutable for a long time, such as mobile IP, Wi-Fi, and cell phone.
- Explain the potential problems in the wireless access media, such as problems of hidden terminals.
- Explain the basics of Wi-Fi networks, such as the protocol stack and frame construction, and its development, such as IEEE 802.11 a/b/g/n/ac series standards
- Define the basic concepts in mobile networks, network architecture, LTE frame and so on.
- Describe the main characteristics of mobile IP and explain how it differs from the standard IP with regard to mobility management.

17. Course content:

Access techniques in mobile communications. Features of antennas and antenna systems. Connecting the transceiver to the antenna system. Cellular organization of mobile systems. Techniques to increase the coverage and capacity. The management of radio resources. Build a mobile device, the design of the radio modem. Analysis of the design of mobile devices. View architecture and performance of mobile systems through generation 2G, 3G, 4G. Wireless WPAN, WLAN, WPAN, MAN and WAN systems. The concept of the ad-hoc / mesh wireless networks. Managing mobility. Mobile Routing (MIPv4 and MIPv6). The traffic characteristics of mobile networks. Radiolocation and navigation techniques and services. Security of mobile communications.

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:

Suad Kasapović, Osnove mobilnih komunikacija, Univerzitet u Tuzli, 2012.
Lingyang Song, Jia Shen, Evolved Cellular Network Planning and Optimization for UMTS and LTE, CRC press, 2011.
Sajal Kum ar Das, Mobile handset design, John Wiley &Sons, 2010.

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