SYLLABUS

1. Course title:

Clinical Engineering

2. Code:

BMI201

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

[ESKE001] Fundamentals of Electrical Engineering I, [RI101] Introduction to Programming

7. Class restrictions:

Students of the Faculty of Electrical Engineering, study program "Electrical Engineering and Computing", that have fu

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures: 3

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 1

10. Faculty:

Faculty of Electrical Engineering

11. Department/study program:

Electrical Engineering and Computer Science

12. Lecturer:

PhD. Amira Šerifović-Trbalić, assistant prof.

13. Lecturer's e-mail:

amira.serifovic@untz.ba

14. Web site:

www.fet.ba

15. Course aims:

The aim of the course is to familiarize students with the basics of management, maintenance and assessment of medical technology and its appropriate integration with the desired clinical practice. Within this course, students will learn about the clinical engineers responsibilities, standards and regulatory agencies of interest.

16. Learning outcomes:

At the end of the semester, successful students, who fulfilled their obligations during the semester, should be familiar with the role of clinical engineer in the clinical environment, know the relevant safety and ethical principles and regulations, know the basic principles of patient signals measurement.

17. Course content:

Introduction to clinical engineering. Health care systems: organization, economy, codes and standards. Clinical information system management: information flow and handling. Engineering in a clinical environment. Equipment: aquisition, control and maintanance. Legal and ethical aspects.

18. Learning methods:

Lectures - a PowerPoint presentation is used, and plates and chalk are used for further explanations.
Laboratory exercises - compulsory student attendance and active participation in classes. The laboratory exercises use the Matlab software package to test the solutions of assignments. The assignments are given on the foregoing laboratory exercises.

19. Assessment methods:

The final grade is formed on the basis of continual knowledge testing, which is performed during the semester in the form of tests and final exams. The first test is held in the 8th week of the semester and covers the course material processed in the first 7 weeks of the semester. The second test is held in the 12th week of the semester and covers the course material from the 8th to the 11th weeks of the semester. All students are writing the test at the same time and can achieve up to 30 points per each exam. The final exams cover the entire course material, focusing on subjects not covered by the tests. At the final exam, the student can earn a maximum of 30 points. Points gained on all forms of knowledge testing are recognized as a cumulative exam and the student must have at least 54 cumulative points to pass the exam.

20. Assessment components:

The final grade is based on the total number of points the student has obtained by fulfilling the prerequisites and passing the final exam. A student can earn up to maximum 100 points. Student assessment is based on the following criteria:
1. attendance and activity at the lectures and exercises (presence at the lectures 5 points and presence at the laboratory exercises 5 points)
2. points achieved on tests (60 points)
3. final exam scores (30 points)

21. Required reading list:

J.G. Webster, A.M. Cook: “Clinical Engineering“, Prewntice Hall, 1979.
J. Dyro: “The clinical engineering handbook“, Academic Press, 2004.
Y. David, W.W. von Maltzahn, M.R. Neuman, J.D. Bronzino: “The clinical engineering", CRC Press, 2003.

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2016/2017

24. Adopted in the Faculty/Academy session:

04.04.2016.