SYLLABUS

1. Course title:

Introduction to Electronics

2. Code:

TK102

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

[ESKE001] Fundamentals of Electrical Engineering I

7. Class restrictions:

Students of Faculty of Electrical Engineering, Study program "Electrical Engineering and Computer Science" with fulfi

8. Duration / semester:

1 3

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. Aljo Mujčić, Full professor

13. Lecturer's e-mail:

aljo.mujcic@untz.ba

14. Web site:

(max. 50 characters)

15. Course aims:

Gain knowledge about the fundamental operation of basic electronic components and their modeling for the purpose of the design in the electronic circuits. Students should gain knowledge in the domain of the theoretical analysis of static characteristics of semiconductor diodes and transistors and be trained to measure their characteristics. Another primary aim is the application of semiconductor components in complex electronics circuits.

16. Learning outcomes:

Measurement and analysis of static characteristics of semiconductor diodes, bipolar and unipolar transistors. Design and analysis of circuits with semiconductor diodes, bipolar and unipolar transistors. Design of amplifiers with bipolar and unipolar transistors. Impact analysis and calculation of the low and high frequency of amplifiers. Analysis of the impact of feedback on amplifiers with bipolar and unipolar transistors.

17. Course content:

Physics of semiconductor material, Intrinsic and extrinsic semiconductors, Diode, Design and Analysis of Diode Circuits, Bipolar Junction Transistors: construction, characteristics, DC analysis, small-signal circuit models, amplifier configurations and frequency response, Field effect transistors: construction, characteristics, DC analysis, small-signal circuit models, amplifier configurations and frequency response, Differential amplifiers, Multistage amplifiers, Power amplifiers, Feedback amplifiers.

18. Learning methods:

Lecturing with projected presentations and necessary derivations on blackboard, with active student participation. Seminars include problem solving and use cases based on electronic circuits with discrete components. Laboratory experiments cover these topics and verify lecture theory. Laboratory is based on experimental sessions including measurements of static characteristics of discrete components and numerical simulations of electronic circuits.

19. Assessment methods:

Continuous assessment during the semester including the two tests during the semester, and the final exam. From two tests during the course students can collect a maximum of 50 points (25 points for each test). The first test is done in the 8th week of the semester and includes the material presented in the first 7 weeks of the semester. The second test is done in the last week of the semester and includes the material presented in the second part of the semester. Final examinations are taken in writing. On the final exam student can achieve a maximum of 50 points.

20. Assessment components:

Final grade is based on the total number of points earned by completing tests during semester and a final exam. The student can achieve a maximum of 100 points according to the following scale:
The first test 25
The second test 25
Total points during semester 50
The final exam counts for 50 points
Total 100

21. Required reading list:

1. Aljo Mujčić, Edin Mujčić, Nermin Suljanović, Osnovi elektronike, Izdavačka kuća Hamidović, Tuzla, 2015.
2. T. E. Price, Analog Electronics, Prentice Hall, 1997.
3. D. Milatović: Osnove elektronike, Svjetlost, Sarajevo 1995

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