SYLLABUS

1. Course title:

Mechatronics

2. Code:

ESKE205

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

◉ Mandatory   ○ Elective

6. Prerequisites:

[ESKE104] Introduction to Mechatronics

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:

Ph.D. Mario Pejdanović, assistant prof.

13. Lecturer's e-mail:

mario.pejdanovic@untz.ba

14. Web site:

www.fet.ba

15. Course aims:

The course objective is mastering the basic knowledge of the components, principles and modes of functioning of the mechatronic systems.

16. Learning outcomes:

After the course lectures and passed final exam students will be able to understand, analyze and optimize complex mechatronic systems.

17. Course content:

Introduction to mechatronics:
Philosophy and use of mechatronics
Integration in mechatronic systems
Principles of mechatronic design and design
Comparison of mechatronic systems and classical electromechanical systems
Mechatronic system components
Digital control techniques - digital control, microprocessor-based industrial controllers, PLCs, advanced control systems
Microprocessor technology
Integration of sensors into a mechatronic system
Criteria for selecting management algorithms
Application of optimal, adaptive and robust management algorithms
Application of intelligent control in mechatronic systems
Artificial Intelligence
Mechatronics in the process of manufacturing, transport systems, electric vehicles
Mechatronic systems in electroenergetics

18. Learning methods:

Theoretical knowledge is provided to students through lectures and auditorial exercises. Practical knowledge includes independent work by students through homework and laboratory exercises, as well as tours of complex mechatronic systems in the industry.

19. Assessment methods:

Knowledge assessment:
1. Testing during the semester as follows:
I Test
II Test
Final exam
2. Makeup exams:
Written part
Oral part (at student's request)

20. Assessment components:

The student gains points through attendance at lectures, audit and laboratory exercises, and through two partial examinations, the first of which is partial exam in the middle of the semester, the second is completed by the end of semester and through the final exam.

21. Required reading list:

S.E. Lishevski: "Electromechanical systems, electric machines, and applied mechatronics", CRC Press, 1999
P. Vas: "Artificial Intelligence-Based Electrical machines and drives", Oxford University Press, 1999

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