SYLLABUS

1. Course title:

Dynamics of mechatronic modules

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

(max. 110 characters)

7. Class restrictions:

(max. 150 characters)

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures: 2

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 1

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Mechatronic

12. Lecturer:

dr.sc. Elvedin Trakić, doc.

13. Lecturer's e-mail:

elvedin.trakic@untz.ba

14. Web site:

www.mf.untz.ba

15. Course aims:

Training of students to solve engineering problems in the design of mechatronic modules.

16. Learning outcomes:

At the end of the semester, successful students, who continued to perform their duties throughout the academic year, will be trained to: master the basic knowledge of the mechatronic modules.

17. Course content:

I- Introduction, basic concepts
II - Description of mechatronic modules (mechanical, electronic, hydraulic and pneumatic)
III- Concept of a dynamic system model, model classification
IV - Choice of model structure, formation of mathematical models, mathematical description of dynamics of mechatronic modules
V- Forming simulation models
VI - Techniques of Validation and Verification of Models
VII- Use of simulation in identifying dynamics of mechatronic modules
VIII- Dynamic analysis of mechatronic modules
IX- Simulation methods, tools and simulation software
X- Design and construction of a mechatronic module
XI- Examples of mechatronic modules

18. Learning methods:

Lectures - theoretical lectures, active two-way communication student professor, mandatory attendance of students;
- Exercise audits - problem solving tasks related to subject matter of the subject, active two-way communication student - assistant, mandatory attendance of exercises;
- Written (from the theoretical part and the tasks);
- Seminar / Graphic Works - independent student work on solving the problem
- Consultation - Clarify any ambiguities related to the topic

19. Assessment methods:

Defense of seminar / graphic works - student defends his / her work in front of the professor / assistant - answers questions asked
- Written (from the theoretical part and the tasks) - student solves questions / tasks in a given time period related to the subject of study

- Final Exam - oral answer to the questions asked by professors
- Corrective Exam (Written) - Solving Questions / Tasks in a Specific Timeframe Related to the Subject of Study
- Corrective Exam (Oral) - Oral Answering Questions

20. Assessment components:

• Tests theory (eg 2 work x 15 points = 30 points)
• Tests task (eg 2 work x 15 points = 30 points)
• Seminar papers (up to 20 points)
• Oral exam up to 20 points

30+ (30) + 20 + 20 = 100 points

Defend and accept seminar work and conquer at least 50% of total points

21. Required reading list:

1. Alciatore D.G., Histand M.B.: Introduction to Mechatronics and Measurment System, Mc Graw-Hill, 2003.
2. Stadler W.: Analytical robotics and mechatronics, McGraw-Hill, 1995.
3. Kamm L. J.: An Introduction to Mechatronics, IEEE Press

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session:

01.06.2015