

SYLLABUS

1. Course title:

MECHANICAL SYSTEMS OF VEHICLES

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course: Mandatory Elective**6. Prerequisites:**

(max. 110 characters)

7. Class restrictions:

(max. 150 characters)

8. Duration / semester:

1

7

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 systems.

16. Learning outcomes:

At the end of the semester, successful students, who continued to perform their duties throughout the teaching period, will be trained to: master the basic knowledge of the mechatronic systems of the vehicle

17. Course content:

- Complex mechatronic systems, concept of complex systems, perspective of application and development.
- A engine vehicle as a complex machine-mechatronic system. System: driver-vehicle-environment. Driver as an operator in a mechatronic system.
- Mechatronic subsystems of the motor vehicle: motor, coupler, brake, transmission, propulsion bridge. Mechatronic subsystems of engine vehicle wheels, subsystem for signaling, subsystem of control and regulation.
- Mathematical modeling of mechatronic subsystems of the motor vehicle -ENGINE as an energy transformer, hydraulic and pneumatic pr.snage.
- Mathematical modeling of mechatronic subsystems of the engine vehicle -ENGINE as an energy transformer, hydraulic and pneumatic pr.snage. Mechatronic subsystem of servo hydraulics.
- Mathematical modeling of a vehicle as a complex dynamic system. Control and regulation with DIZEL and OTTO engines.
- ENGINE vehicle - intelligent mechatronic system Soft-computing; Fuzzy logic systems, genetic algorithms, artificial neural networks.

18. Learning methods:

Lectures, Laboratory Exercises, Projects, Written / Oral Testing, Seminar and Consultation

19. Assessment methods:

- Lectures - theoretical lectures, active two-way communication student professor, mandatory attendance of students;
- Laboratory exercises - Laboratory work, acquisition of practical skills related to subject matter of the subject, active two-way communication student - assistant, mandatory attendance of exercises;
- Seminar / Projects - Independent work of a student to solve the problem
- Consultations - Clarify any ambiguities related to the subject matter of the subject

20. Assessment components:

- Presence continues 10 points
- Tests (eg 2 work x 25 points = 50 points)
- Seminar papers (up to 15 points)
- Oral exam up to 25 points

10+ (50) + 15 + 25 = 100 points

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

21. Required reading list:

1. Rafael C. Gonzalez,; Richard E. Woods,; „Digital Image Processing“ 2002.
2. W. Bolton, Mechatronics – Electronic control systems in mechanical and electrical engineering, Prentice Hall, 2003.

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