SYLLABUS

1. Course title:

MODERN MATERIALS

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

Attend courses in Modern materials, attend exercises

7. Class restrictions:

-

8. Duration / semester:

1 4

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:

Power Engineering, Production Engineering, Mechatronics

12. Lecturer:

dr.sc. Seniha Karić, docent

13. Lecturer's e-mail:

seniha.karic@untz.ba

14. Web site:

www.mf.untz.ba

15. Course aims:

The aim of the course is to give students knowledge in the field of modern materials, in order to master the new processes and new technologies to obtain new materials. Training for solving concrete problems in with the aim to select the most proper materials for specific conditions.

16. Learning outcomes:

Based on the knowledge acquired during the hearing of cases, students will be able to distinguish new materials according to their properties and characteristics. Know the methods of production and processing technology for new materials. Analyze and know how to choose which material applicable for different products.

17. Course content:

Ceramics
Polymers
Composites
Metallic Foams
Materials and products produced by powder metallurgy
Metallic glasses (amorphous metals)
Smart materials
Light metal
Copper alloys
Special Steel
Steel and other metals alloys
Nickel and Nickel alloys
Lead, Zinc and their alloys
Special alloys for Electrical Engineering

18. Learning methods:

In lectures theoretical part of the course is presented with appropriate practical examples, in order to facilitate the understanding the course contents; with usage of multimedia resources.
Laboratory exercises;
Preparation and presentation of individual and group seminar.

19. Assessment methods:

After half of the semester, students take the writing test (the first mid-term), which includes previously treated topics from lectures and exercises. Test consists of 10 multiple-choice questions. A student on the first midterm can achieve a maximum of 15 points (50% of which represents a passing grade). After the end of the semester students take a second writing test (second mid-term) covering the treated topics with lectures and exercises in the second part of the semester. Test consists of 10 multiple-choice questions. Student on the second mid-term of can achieve a maximum of 15 points (50% of which represents a passing grade). Both tests are taken by all students in the course at the same time, thereby achieving uniformity of the level of knowledge that is being tested, as well as the conditions under which the student takes the exam. As part of the pre-exam requirements students are required to do individual or group seminar, which will be connected to one course topic. Seminar shell be electronically and written submitted to professors assistant for review and then presented orally, which will be a base for grading, where student can earn 5-15 points. By attending lectures and exercises and ongoing activity throughout the semester, the student can earn 0 to 5 points.
The final exam consists of two parts: written and oral. Only students who submitted and successfully presented seminar can take final exam. The written part of the exam consists of theoretical questions which will include all course treated topics, where students can achieve max. 30 points, where at least 15 points are required to be taken in account.
At the oral examination the student answers questions from the all topics treated in lectures. Oral exam can be passed if a student answers to most questions. If the student does not pass the oral exam, students points achieved on written part of the final exam are deleted. The maximum number of points a student can achieve at the oral exam is 20. In order for students to take the oral exam, student must previously have achieved at least 34 points. If the student does not have the minimum for taking the oral exam, achieved credits within written exam gets cumulatively added to students score on the makeup exam. On makeup exam student is required to pass a written and oral exam to. The makeup exam is taken same as final. To the student passed the exam must achieve a minimum of 54 points.

20. Assessment components:

Students mark is based on the total number of points a student earned by completing pre-exam requirements and exams, according to the quality of the acquired knowledge and skills, and contains a maximum of maximum 100 points, and is determined according to the following scale:

Student obligation	points
The presence on lectures, exercises and activity	5
Seminars	15
2 pre-exam test	2x15
(pre-exam requirements, total)	(50)
Final exam: - written (tasks + theory)	30
- oral	20

21. Required reading list:

1. Ćatović F. (2001) Nauka o materijalima-Novi materijali, Mašinski fakultet Mostar i Tehnički fakultet Bihać
2. Tomašević S. (1999) Dizajniranje tehničkih materijala“ Apeks Zenica, Zenica
3. Lučić R. (1998) Mašinski materijali, Paraćin,

22. Web sources:

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session:

01.06.2015