SYLLABUS

1. Course title:

PHYSICS II

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

No

7. Class restrictions:

No

8. Duration / semester:

1 2

9. Weekly contact hours:

9.1. Lectures: 2

9.2. Seminars: 1

9.3. Laboratory/Practice classes: 1

10. Faculty:

Faculty of Technology

11. Department/study program:

Chemical Engineering and Technologies, Food Technology, Environmental Protection Engineering

12. Lecturer:

Hedim Osmanović

13. Lecturer's e-mail:

hedim.osmanovic@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

The main aims of this course:
-explain electric and magnetic force laws.
-Conceptual understandings of electromagnetic field.
- learn the basic laws of optics and application of optics in the construction of devices used in technology.
-learn the basics of atomic and nuclear physics and its application in technology.

16. Learning outcomes:

Learn to carry numerical evaluation of algebraic results, using appropriate units for physics quantities.
-Learn how to apply gained knowledge to specific problems in physics.
-Be able to analyze, draw graphs and give a qualitative interpretation of a particular graph.
- Apply of mathematical knowledge on selected problems in science and technology.

17. Course content:

Simple harmonic motion and elasticity. Waves and sound-Doppler effect. Electric forces and electric fields. Magnetic forces and magnetic fields. Motion of a charged particle in electric- magnetic and electromagnetic filed. Electromagnetic waves. The nature of electromagnetic waves, Reflection of light, refraction of light, lenses and optical instruments. Interference and the wave nature of light. Young's Double-Slit experiment, diffraction grating. Blackbody radiation and Planck's constant. Momentum of a photon and a Compton effect. De Broglie wavelength and wave nature of matter. The nature of atom. Rutherford scattering and the nuclear atom, Bohr model of the hydrogen atom. Nuclear structure, mass defect of the nucleus and nuclear binding energy. Radioactive decay and activity. New Sources of Energy.

18. Learning methods:

Lectures, exercises, laboratory, office hours. Lectures will be based on conceptual approach with selective examples. Exercises should provide better understanding physics problems and follow contents of given lectures. Labs are mandatory and integrated part of the course. Attendance is required and will be noted.

19. Assessment methods:

There two written exams during the semester. Exams contain problems, and also conceptual questions in multiple-choice format. Some of the exam questions will require written solutions. Each written exams is worth 20% of the total course grade, and the two written exams combined account for 40%.
The laboratory is a required and integrated part of the course, and counts 10% of student's final grade. The final grade for laboratory will be based on the lab reports, one for each lab exercise.
Final exam (written exam) is worth 50%.
The grade scale will be:

Cumulated score [%]	Grade (BiH)
<54	5 (fail)
54-64	6
65-74	7
75-84	8
85-94	9
95-100	10

20. Assessment components:

The exam score will be based on 100% as a perfect score. The student's grade will be calculated from formula:
(WrittenE1+WrittenE2)x0.2+(Lab)x0.1+(FinalE)x0.5

21. Required reading list:

1. J. Janjić, I. Bikit, N. Cindro, Opšti kurs fizike, Naučna knjiga, 1987.
2. S. Marić, Fizika, Svjetlost, 2001.
3. G. Dimić, M. Mitrinović, Zbirka zadata iz fizike, D, Građevinska knjiga, 1986.
4. V. Vučić, Osnovna merenja u fizici, Naučna knjiga.

22. Web sources:

23. Applicable starting from the academic year:

2015/16.

24. Adopted in the Faculty/Academy session:

(max. 10 char.)