SYLLABUS

1. Course title:

Physics II

2. Code:

FIZ2

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

[FIZ1] Physics I

7. Class restrictions:

8. Duration / semester:

1 II

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:

PhD. Senada Avdic, full professor

13. Lecturer's e-mail:

senada.avdic@untz.ba

14. Web site:

http://www.fe.untz.ba

15. Course aims:

The aim of this course is to introduce students to the basics of fluid dynamics, oscillatory motion and wave motion, thermal phenomena and laws of thermodynamics, as well as the basics of Quantum physics and Nuclear physics. These areas are the basis for understanding the more complex processes and phenomena that are being studied at higher years of study.

16. Learning outcomes:

This course provides the basis required for treating the broad spectrum of physical problems. Certain curriculum units of this course represent the basis for studying the advanced scientific disciplines at higher years of study.

17. Course content:

The Equation of continuity. Bernoulli's equation. Torricelli's theorem. The dynamic buoyant force. Newton's Law of Viscosity. Temperature. The zeroth law of thermodynamics. Measuring temperature. Heat. Thermal expansion. Calorimetry. Equation of ideal gases. The first law of thermodynamics. Carnot's engine. The second law of thermodynamics. Elastic deformations. Simple harmonic motion and damped harmonic oscillators. Forced oscillations and resonance. Transverse and longitudinal waves. The energy of mechanical waves. Intensity of waves. Interference of waves. Reflections and transmission of waves. Standing waves. Sound sources. Sound level. The Doppler effect. Special theory of relativity. Planck's law of radiation. Photoelectric and Compton effect. Schrodinder's equation. Models of atom. Discovering of nucleus. Nuclear properties. Radioactive decay. Nuclear fission and fusion. Nuclear reactors.

18. Learning methods:

The subject matter will be presented at the conceptual level during the lectures, including a number of illustrative examples. The material presented in the lectures should be elaborated in the auditorial and laboratory exercises. Consideration of practical physical problems should contribute to a better understanding of the subject's contents given at the lectures.

19. Assessment methods:

The two tests should be done in the middle of semester and at the end of the semester in a written form. Each test contains tasks that relate exclusively to the lectures presented between the tests. The knowledge gained in the laboratory exercises will be checked through the colloquium. The final exam is in a written form.

20. Assessment components:

Prerequisites (P) Final Exam (FE)

Criteria	Number of points	Number of points
Test I	22	50
Test II	22	
Laboratory exercises	6	
Total: 50		

Total Exam Points (P + FE): 50 + 50 = 100

21. Required reading list:

1. S. Avdić, I. Gazdić, Fizika II-odabrana poglavlja, Univerzitetski udžbenik, In Scan d.o.o. Tuzla, Tuzla, 2013.
2. V. Vučić, D. Ivanović, Fizika, Naučna knjiga, Beograd, 1998.
3. L. Tanović, N. Tanović, Mehanika, Svjetlost, Sarajevo
4. M. Paić, Gravitacija.Sile.Valovi, Školska knjiga, Zagreb, 1997.

22. Web sources:

http://hyperphysics.phy-astr.gsu.edu/hbase/hph.html
http://www.nist.gov

23. Applicable starting from the academic year:

2016/17

24. Adopted in the Faculty/Academy session:

04.04.2016