SYLLABUS

1. Course title:

PHYSICS I

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 1

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:

dr. Sci. Hedim Osmanović, associate professor

13. Lecturer's e-mail:

hedim.osmanovic@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

Study laws of motion for particles and rigid body.
Study of ideal and real fluid flows.
Study the concepts and phenomena of thermodynamics and thermal physics.
Increase students' ability to connect physical concepts to the solution of real-world problems.

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 physics interpretation of a particular graph.
- Apply of mathematical knowledge on selected problems in science and technology.

17. Course content:

Units, scalars and vectors, vector addition and subtraction. Kinematics in one dimension. Kinematics in two dimension-projectile motion. Forces and Newton's laws of motion- tension forces, normal force, static and kinetic frictional forces. Dynamics of uniform circular motion. Work and energy - the work-energy theorem, conservative versus nonconservative forces. Conservation of energy. Rotational kinematics and dynamics- action of forces and torques on rigid bodies, center of gravity, rotational work and energy, angular momentum.
Fluids- fluids in motion, equation of continuity, Bernoulli's equation, Viscous flow. Thermodynamics, laws of thermodynamics -heat engines, Carnot's principle.

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 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.)