UNIVERSITY OF TUZLA UNIVERZITET U TUZLI

SYLLABUS

1. Course title:

PHYSICS

2. Code:

LRUDFIZ

3. Cycle of study:

1

4. ECTS credits:

4

5. Type of course:

Mandatory

6. Prerequisites:

No

7. Class restrictions:

No

8. Duration / semester(s):

1 | 1

9. Weekly contact hours and student workload:

	Semester (1)	Semester (2)	(for two-semester courses)	Workload: (hours)
9.1. Lectures	2		Classes:	33,75
9.2. Seminars	1		Individual work:	67,92
9.3. Laboratory / Practice classes	0		In total:	101,76

10. Faculty:

Mining, Geology and Civil Engineering

11. Department/study program:

Mining Engineering

12. Lecturer:

Faculty of Science and Mathematics Tuzla

13. Course aims:

One of the main goals is to convey students a basic knowledge and experience gained in physics during elementary and high school and expand it with new knowledges. Also, to enhance their intellectual skills in a term of application of gained knowledge while resolving different tasks and problems.

14. Learning outcomes:

At the end of the course, successful students who have continuously fulfilled their obligations throughout the entire teaching period will be able to:

- Recognize basic natural phenomena in practice,
- Apply fundamental physical laws in practice,
- Solve both simple and complex problems practically,
- Explain and verify certain physical principles through learned physical relations (formulas),
- Understand the connection between physics and other natural sciences.

15. Course content:

Indicative Content of the Physics Course for Lectures and Auditory Exercises:

- Introductory Lecture: Presentation of the course syllabus "Physics."
- Subject of Study in Physics: Physical quantities and their units.
- Mechanical Oscillations: Linear harmonic oscillator, forced oscillations, damped oscillations.
- Wave Motion: Interference, polarization, and diffraction of waves.
- Thermodynamics: Thermal expansion of solids, liquids, and gases; Molecular kinetic theory of gases; Work of gases and vapors; The first and second laws of thermodynamics; Carnot's cyclic process; Heat transfer (conduction, convection, radiation).
- Geometrical Optics: Laws of geometrical optics; Mirrors; Lenses; Optical instruments; Photometry.
- Physical Optics: Light interference; Diffraction of light; Light polarization; Lasers.
- Thermal Radiation: Photoelectric effect; Compton effect.
- Basics of Atomic Physics: Atomic models; Spectral lines.
- Basics of Nuclear Physics: Binding energy; Radioactivity; Nuclear fission and fusion.

16. Learning methods:

Lectures, Auditory Exercises, and Consultations:
The student is required to attend lectures and auditory exercises regularly throughout the entire semester. During the lectures, the material outlined in the course syllabus will be presented. The instructor will monitor student attendance throughout the semester using a specially created attendance form. In the auditory exercises, tasks will be worked on that align with the material presented in the lectures.

17. Assessment methods:

During the semester, students will complete two tests, after every 14 hours of lectures and 7 hours of exercises. Each test is worth a maximum of 20 points. Both tests will be in written form and will contain tasks and questions exclusively related to the material covered between the tests.
The final exam is a synthesis of the previous tests. The final exam will be in written form and will consist of tasks and questions covering all the material taught throughout the course.
If a student does not pass the final exam, they will be referred to a retake exam. If the student still does not pass the retake, they will be referred to an additional retake exam. The retake and additional retake exams are written and follow the same principles as the final exam.
The date of the tests will be announced to students at least seven (7) days in advance to allow adequate preparation.

1. Attendance at lectures and auditory exercises
2. Two tests
3. Final exam

Based on the above activities, at the end of the course, the instructor will form the final grade by scoring each activity.

18. Assessment components:

The total number of points is obtained by summing the maximum possible points from all activities during the semester:

- Attendance at lectures: 5 points
- Attendance at exercises: 5 points
- Test I: 20 points
- Test II: 20 points
- Pre-exam obligations: 50 points
- Final exam: 50 points
- Total: 100 points

The final success of the student, after all prescribed forms of knowledge assessment, is evaluated and graded using a system comparable to the ECTS grading scale as follows:
a) 10 (A) – Outstanding performance with no errors or minimal errors, 95-100 points
b) 9 (B) – Above average, with some errors, 85-94 points
c) 8 (C) – Average, with noticeable errors, 75-84 points
d) 7 (D) – Generally good but with significant shortcomings, 65-74 points
e) 6 (E) – Meets the minimum criteria, 54-64 points
f) 5 (F, FX) – Does not meet the minimum criteria, less than 54 points

19. Mandatory reading list:

1.Fitzpatrick, R. : Oscillations and waves: An Introduction, CRC Press, 1 edition,2013.
2.Adrović F.:Fizika, Tuzla, 2006.
3. Lazarev S.: Fizika, Viša Tehnološka Škola, Šabac, 2003.
4. Čolić A.: Zbirka zadataka iz fizike za studente RGF-a, 1996 .

20. Additional reading list:

21. Web sources:

22. Applicable from the academic year:

2025/26

23. Adopted in the Faculty/Academy session: