SYLLABUS

1. Course title:

PHYSICAL PHARMACY

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

None

7. Class restrictions:

None

8. Duration / semester:

1 4

9. Weekly contact hours:

9.1. Lectures:	2
9.2. Seminars:	0
9.3. Laboratory/Practice classes:	2

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Pharmacy (integrated academic study I and II cycle)

12. Lecturer:

dr.sc. Amra Odobašić, full professor

13. Lecturer's e-mail:

14. Web site:

www.frmf.untz.ba

15. Course aims:

Familiarity with surface phenomena and their importance in drug formulation, as well as the role of water in tableting and its influence on the stability of various pharmaceutical forms through the study of phase diagrams.

16. Learning outcomes:

At the end of the semester/course, successful students, who continuously performed their duties during the entire teaching period, will be able to:
- Create a clearer picture of the role of surface phenomena in drug formulation
- Students get to know and gain independence in solving practical problems, through practical, experimental exercises.

17. Course content:

Introduction to physical pharmacy. Solid state - Structure, shapes and external appearance.
Polymorphism and the solid crystalline state. Crystal hydrates/solvates. Dissolving solid drugs. Crystallization and factors affecting crystal form. Modification of the crystal form. Crystallization and formation of polymorphic forms. Crystallization methods. Solutions and solubility. Solubility of weak electrolytes and ampholytes. Distribution of drugs. Thermodynamic properties of drugs. Ionization. Activity of ionized drugs. Osmotic properties of the drug. Transport processes. Drug dispersion in polymeric drug carriers. Thermodynamic aspect of pharmacy. Chemical decomposition of drugs. Factors affecting drug stability in liquid solution. Phenomena on boundary surfaces. Spills and wetting. Classification of hydrophilic - lipophilic systems. Properties of drug solutions. Adsorption. Adsorption isotherms. Colloids - emulsions, suspensions. Characteristics of colloid systems and stability of colloids.

18. Learning methods:

Through interactive lectures, students will be introduced to the basic concepts and principles of surface phenomena, as well as the most significant surface processes and their application. Part of the field exercises are planned, where the students would get to know possible problems through a tour of the laboratory for testing and synthesizing medicines.
Seminars
Through concrete problems, students will demonstrate the level of acquired knowledge through lectures and exercises.

19. Assessment methods:

During the semester, the student will have two tests and a final exam. Each test carries 25 points.
The final exam carries 30 points. Students who have collected at least 25 points during the pre-exam requirements can take the final exam. Students earn the rest of the points through entrance and exit colloquiums and attendance and activity in class.

20. Assessment components:

< 55 points = 5 (five)
55–64 points = 6 (six)
65–74 points = 7 (seven)
75–84 points = 8 (eight)
85–94 points = 9 (nine)
95–100 points = 10 (ten)

21. Required reading list:

1. Amra Odobašić: Interna skripta iz Fizikalne farmacije, 2017 godina
2. P.W.Atkins : Physical Chemistry, Oxford University, 2007.god.
3. Paul Monk: Physical Chemistry – Understanding our Chemical Word, John Wiley& Sons,Ltd, 2007.god.

22. Web sources:

23. Applicable starting from the academic year:

2018/2019

24. Adopted in the Faculty/Academy session:

17.11.2025.