SYLLABUS

1. Course title:

Physical Chemistry

2. Code:

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(●) Mandatory ( ) Elective

6. Prerequisites:

General Chemistry

7. Class restrictions:

8. Duration / semester:

1 3

9. Weekly contact hours:

9.1. Lectures: 3

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 2

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Pharmacy (integrated 1st and second cycles)

12. Lecturer:

Husejin Keran

13. Lecturer's e-mail:

husejin.keran@untz.ba

14. Web site:

www.pharmacy.untz.ba

15. Course aims:

The aim of course is that student has to get the following:
- theoretical and practical knowledge about physical variables needed for description of system of state;
- key principles which are used to describe the direction of change of system state.

16. Learning outcomes:

Students should be able:

- to make clearer picture about matter and thermodynamical variables characterize state of system and change of state of system,
- through theoretical and practical exercises, which are created as small research experiments, get individuality in solving of practical problems.

17. Course content:

- Structure of matter and state of matter
- Gas state - ideal and real gases
- Solid and liquid state, colligative properties
- Chemical energetics, the first law of thermodynamics
- Enthalpy and entropy, the second law of thermodynamics
- Free energy, equilibrium, Gibbs energy,
- Chemical potential, chemical equilibrium, temperature dependence on equilibrium,
- Gibbs rule, Phase equilibrium,
- Chemical kinetics, the first, the second and n- order of chemical reactions,
- Kinds of reactions, complex reactions,
- Half time of chemical reactions,
- Chemical reactions dependence on temperature and other
- Catalyzed and non catalyzed reactions, heterogeneous and homogeneous reactions,
- Colloidal chemistry, obtaining, properties and cleaning of colloidal solutions
- Optical and electrochemical properties of colloidal systems,
- Electrochemical potential, electrophoresis, electrosmosis, end other
- Photochemistry, kinds of reactions, principles, application of those reactions,
- Electro-chemistry, Electrolysis, - basics, Faraday's laws, conductivity, Galvanic cell
- Electromotive forces, Electrochemical reactions, Nernst's law,
- Entropy, Electromotive forces, Oxidation and Reduction,

18. Learning methods:

- lectures including interactive communcation with students, with practical samples
- experimental exercises ,
- consultancy.

19. Assessment methods:

- exams during lectures, three in total,
- seminars,
- attendance at practical exercises in laboratory
- attendance at theoretical lectures,
- regular exams, planned by plan of exams during year

20. Assessment components:

there are three tests,
each test during lectures has 20 points,
final test is 40 points,

21. Required reading list:

1. S . Đorđević, Fitzička hemija, Tehnološko - Metalurški fakultet Beograd, 1985.,
2. P.W. Atkins, M.J. Clugston, Načela Fizikalne hemije, Školska knjiga Zagreb, 1996. (Translation T.Cvitaš, D. Šafar - CVitaš)
3. P.W. Atkins, Physical Chemistry, Oxford. 8.ed.

22. Web sources:

www.pharmacy.untz.ba

23. Applicable starting from the academic year:

2012/2013

24. Adopted in the Faculty/Academy session: