SYLLABUS

1. Course title:

PHYSICAL CHEMISTRY

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

7

5. Type of course:

(●) Mandatory ( ) Elective

6. Prerequisites:

non

7. Class restrictions:

non

8. Duration / semester:

1 4

9. Weekly contact hours:

9.1. Lectures: 4

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 3

10. Faculty:

Food of Technology

11. Department/study program:

Food Technology, Environmental Protection Engineering

12. Lecturer:

Amra Odobašić, full professor

13. Lecturer's e-mail:

14. Web site:

www.tfuntz.ba

15. Course aims:

The aim of the course "Physical chemistry" is that the students acquire theoretical and practical knowledge about physical and chemical parameters necessary to describe the state of thermodynamic system. To introduce students to the key principles that describe the direction of unscrewing of changes of system.Getting acquainted with the specifics of the thermodynamic and kinetic behavior of complex systems .

16. Learning outcomes:

At the end of the semester / course successful students will be able to:
- create a a clearer picture of thermodynamic quantities which characterize state of the thermodynamic system and changes the system state.
- create a a clearer picture of the manner and mechanism of unfolding chemical processes
- the practical exercises that are designed in the form of short research experiments, students will gain independence in solving practical problems.

17. Course content:

Introduction: Solid and crystalline state. The importance of the structure of the food. Liquid crystals. The mechanism of the crystal growth. Controlling the crystallization. Liquid crystals. Gaseous state - ideal and real gases. The molar heat capacity of gas. Transport properties of gases. Liquid state of matter. Colligative properties of the solution. Chemical energetics - Thermodynamic functions. First law of thermodynamics. Enthalpy. Changing the standard enthalpy. The influence of temperatures on enthalpy of reaction. Secound Law of Thermodynamics. Entropy. Free energy. Change Gibbs energy with pressure at constant temperature. Using the Gibbs function. Chemical equilibrium. The equilibrium constant. The thermodynamic approach to chemical equilibrium. The influence of pressure and temperature on the equilibrium. Equilibrium of phases and phase transformation. Phase diagrams. The Gibbs phase rule. Kinetics: rate chemical reactions. Order of reaction. Catalysis: definitions, types. Surface phenomena. Sruface tension. Adsorption. Adsorption isotherms.

18. Learning methods:

1. lectures
Through interactive lectures, students will learn about the basic concepts and principles of behavior of different systems, and through practical examples and problems closer to a way of behavior and testing different thermodynamic system in different conditions
Exercises
Foreseen exercise, in which the students acquire skills to solve specific problems and calculation of essential physical and chemical parameters for each test system.Through practical experiments, students will demonstrate the level of acquired knowledge through lectures and theoretical exercises, and acquire skills for practical and scientific - research work.

19. Assessment methods:

In writing / Orally

20. Assessment components:

During the semester, students will have two testsand final exam, which consists of two tasks and theory.
The student must have a completely accurate task. Calculating section carries 10 points, a theoretical 15th. At the beginning of the semester the student is required to pass the entrance exams (5 points), and at the end of the semester Colloquium output (10 points).
The examination of the theoretical part is written and carries a maximum 25 points.
The examination of the calculation part is written and carries a maximum 10 points

21. Required reading list:

1. Amra Odobašić, ”Fizikalna hemija” IN SCAN d.o.o,2016 godina
1. Amra Oodbašić, Sead Ćatić, Husejin Keran, Amra Bratovčić, Indira Šestan:“Zbirka zadataka iz Fizikalna hemije“, OFF_SET Tuzla,2013.

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session:

(max. 10 char.)