



# ФАРМАЦЕВТИЧЕН ФАКУЛТЕТ МЕДИЦИНСКИ УНИВЕРСИТЕТ - СОФИЯ

ул. Дунав №2, 1000 София; Тел. 029879874; e-mail: dean@pharmfac.mu-sofia.bg

**Approved from the Faculty Council with Protocol № 4/.16.06.2022**

DEAN:

/Prof. Alexander Zlatkov, DSc/

## DEPARTMENT OF CHEMISTRY SYLLABUS

**of General and Inorganic Chemistry**

INCLUDED IN "PHARMACY" EDUCATIONAL CURRICULUM

DEGREE OF EDUCATION: "MASTER"

CREDITS (ECTS): 10

### ANNOTATION

The curriculum in "General and Inorganic Chemistry" is consistent with the requirements for courses in higher education institutions. In the subject "General and Inorganic Chemistry", educated at the Faculty of Pharmacy, the fundamental theoretical basics of general chemistry are considered, and in the part on chemistry of elements - the characteristic physical and chemical properties of elements and their compounds, with emphasis on their biological role are included. The obligatory course in general and inorganic chemistry is in line with the modern requirements for in-depth fundamental knowledge and practical skills in the training of students in pharmacy.

The first part includes basic theoretical topics such as the structure of atom, periodic table, chemical bonds and complex compounds. Following are topics related to the course of chemical processes (chemical thermodynamics, chemical kinetics, catalysis, chemical equilibrium, redox processes, physicochemical analysis), topics on solutions (dispersion systems, electrolyte solutions, colloidal solutions). This part provides students with systematic theoretical and practical knowledge in the field of general chemistry, with emphasis on biochemical processes.

The second part includes the chemical elements and their compounds. It is built on the concept of interconnection "position in the periodic system – chemical properties – biological role of chemical elements and their compounds" and is adapted to the needs of pharmaceutical practice.

Attention is specifically focused on the role and influence of chemical elements and their compounds on biological systems and mainly on the human body. Students are expected to build the necessary skills to apply this knowledge in their professional realization.

The practical exercises consist of three parts, adapted to the specific requirements of the chemical and pharmaceutical subjects, educated in the Faculty of Pharmacy. Laboratory work aims to provide students with practical experience and basic skills to work in a chemical laboratory.

The first part includes seminars on stoichiometric calculations, including composition of compounds, empirical formulas, composition of solutions, redox reactions and calculations on them.

The second part covers some theoretical topics related to the lectures course. The practice is directed to acquaintance with laboratory equipment and basic operations, related to recrystallization of substances, chemical kinetics, electrolytic dissociation, hydrolysis, colloidal solutions, physicochemical analysis, etc.

In the third part, chemical elements and their compounds are studied per groups of the periodic table. The practical training covers the obtaining and properties of chemical compounds of the elements with an emphasis on their biological action.

**Type of control and evaluation: routine control - three colloquiums, practical exam and academic year exam – written and oral.**

## **English language training**

### **SYLLABUS**

1. Structure of the atom
2. Periodic system of chemical elements
3. Chemical bonding
4. Complex compounds
5. Chemical thermodynamics
6. Chemical kinetics
7. Chemical equilibrium
8. Solutions
9. Electrolyte solutions
10. Colloids
11. Physicochemical analysis
12. Oxidation-reduction processes
13. Hydrogen

14. First A group of the periodic table
15. Second A group of the periodic table
16. Third A group of the periodic table
17. Fourth A group of the periodic table
18. Fifth A group of the periodic table
19. Sixth A group of the periodic table
20. Seventh A group of the periodic table
21. First and second B groups of the periodic table
22. Elements of first transition period of metals

Date: .....

Program author:

*/Prof. Irena Kostova, DSc/*

Head of the Department of Chemistry:

*/Prof. Irini Doytchinova, DSc/*