



COURSE DESCRIPTION CARD - SYLLABUS

Course name

General and Inorganic Chemistry

Course

Field of study

Pharmaceutical Engineering

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

15

Tutorials

0

Laboratory classes

30

Projects/seminars

0

Other (e.g. online)

0

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

dr hab. Jan Matysiak

Responsible for the course/lecturer:

dr Barbara Ćwiertnia, dr Barbara Szafran-Urbaniak, Dr Paweł Dereziński, mgr Eliza Matuszewska

Prerequisites

Knowledge of general chemistry at high school level.

Course objective

Extending the knowledge of the basics of general and inorganic chemistry and extending practical ability to perform qualitative analyzes of inorganic single and complex substances.



Course-related learning outcomes

Knowledge

knows the basics of kinetics, thermodynamics and catalysis of chemical processes [K_W11]

has ordered general knowledge in the field of inorganic, organic, physical and analytical chemistry enabling understanding, description and research of chemical phenomena and processes related to pharmaceutical engineering [K_W4]

has knowledge of the basic techniques, methods for characterization and identification of pharmaceutical products and research tools used in pharmaceutical engineering, knows the classical and instrumental methods used in assessing the quality of substances for pharmaceutical purposes and in quantitative analysis in medicinal products, knows the physicochemical properties of substances for pharmaceutical use and the biological activity of drugs, knows the classification of analytical techniques together with the criteria for the selection of methods and method validation [K_W7]

knows the rules of environmental protection related to pharmaceutical technology and waste management, has the necessary knowledge about the risks associated with the implementation of chemical and pharmaceutical processes [K_W8] [K_W26]

has knowledge of the basic conceptual categories and terminology used in pharmaceutical engineering and related industries [K_W9]

has ordered general knowledge in the fields of pharmacy, cosmetology, technology and chemical engineering, as these fields are directly related to pharmaceutical engineering [K_W1]

Skills

selects and applies analytical methods and techniques in qualitative and quantitative analysis as well as to control processes and assess the quality of raw materials and products [K_U11]

uses correct chemical and pharmaceutical terminology and nomenclature of chemical compounds, also in a foreign language [K_U3]

Social competences

is ready to critically assess his knowledge, understands the need for further education, supplementing specialized knowledge and raising his professional, personal and social competences, understands the importance of knowledge in solving problems and is ready to seek expert opinions. [K_K1]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge will be verified through colloquium and exam, practical skills will be verified on the basis of tasks and exercises, social competences will be verified on the basis of colloquium, exam, observation and conversations with students

Programme content



Types of chemical reactions. Oxidation and reduction processes. Catalysts - types of application. Fundamentals of chemical kinetics. Division, properties and nomenclature of inorganic compounds. Periodic table - regularities. Physical and chemical properties of selected elements, with particular emphasis on practical importance in pharmaceutical engineering. The most important inorganic compounds of biological importance. Diseases caused by a lack or excess of certain elements in the body.

Teaching methods

Lecture: multimedia presentation, illustrated with examples on the board.

Laboratory exercises: multimedia presentation illustrated with examples given on a blackboard and performance of tasks given by the teacher - practical classes.

Bibliography

Basic

1. Bielański A. Podstawy chemii nieorganicznej , Wydawnictwo naukowe PWN, 2010.
2. Jones L., Atkins P. Chemia ogólna tom II Częsteczki , materia, reakcje , Wydawnictwo naukowe PWN, 2009.
3. Jones Lkins P. Chemia ogólna tom I Częsteczki , materia, reakcje , Wydawnictwo naukowe PWN,, 2009.

Additional

1. Minczewski J; Marczenko Z. Chemia analityczna tom I Podstawy teoretyczne i analiza jakościowa , Wydawnictwo naukowe PWN, 2010.
2. Piękoś R. Chemiczna analiza jakościowa , AMG Gdańsk, 2005.
3. Cox P.A. Chemia nieorganiczna , Wydawnictwo naukowe PWN, 2006.
4. Gałasiński W. Chemia medyczna , PZWL Warszawa, 2004.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	50	2,0
Student's own work (literature studies, preparation for laboratory classes, preparation for tests/exam) ¹	50	2,0

¹ delete or add other activities as appropriate