



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Chemia analityczna - mianowanie i oznaczanie alkacymetryczne (Analytical Chemistry - Titrants and Acid-Base Standardization)

Course

Field of study

Technologia chemiczna (Chemical Technology)

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

II/3

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

0

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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Prerequisites

Knowledge of analytical chemistry gained during lectures and basic analytical chemistry laboratories from this course

Course objective

The aim of the course is to consolidate the basic knowledge in the field of analytical chemistry, expanding it and practical use

Course-related learning outcomes

Knowledge

1. The student has a systematized, general theoretical knowledge of basic and analytical chemistry. Acquires the ability to plan chemical experiments and develop results [K_W08]
2. The student has the necessary knowledge of analytical chemistry to understand chemical phenomena and analytical processes. [K_W03]

Skills

1. The student can assess the suitability of analytical methods and techniques appropriate for solving engineering tasks of a practical nature in analytical chemistry. [[K_U14]
2. The student can use the correct chemical terminology and nomenclature of chemical compounds [K_U17]
3. The student can select analytical methods for determination of chemical compounds. [K_U21]
4. The graduate can implement the process of self-learning. [K_U05]

Social competences

1. The student understands the need to develop and improve their professional competences [K_K01]
2. The student can cooperate and work on a team [K_K03]
3. The student can appropriately determine the priorities for accomplishing the assigned task. [K_K04]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Oral or written verification of messages required to perform certain experiments

Programme content

The following analytical tasks will be performed during the laboratory classes:

1. Preparation of the standard solution of 0.1 M hydrochloric acid and setting its titre to anhydrous sodium carbonate.
2. Preparation of the 0.1 M sodium hydroxide standard solution and setting of its standardization on the previously modified acid solution.



3. Co-determination of hydrochloric and phosphoric acid (V).

Before the cycle of laboratory classes, students are acquainted with the general principles of safety health at work in a chemical laboratory.

After the cycle of exercises, the student has the opportunity to improve or supplement the missing markings.

Teaching methods

Making excersises according to the description given by the teacher - practical classes

Bibliography

Basic

1. J.Minczewski, Z.Marczenko "Chemia analityczna" t.1, 2.
2. A.Cygański "Chemiczne metody analizy ilościowej".

Additional

1. D.A.Skoog, D.M. West, F.J. Holler, S.R. Crouch , Podstawy chemii analitycznej, t.1 i 2, WNT Warszawa 2006/2007
2. A. Cygański , Chemiczne metody analizy ilościowej, WNT Warszawa 2005
3. A. Cygański, B. Ptaszyński, J. Krystek, Obliczenia w chemii analitycznej, WNT Warszawa 2004
4. A. Hulanicki, Reakcje kwasów i zasad w chemii analitycznej PWN W-wa 1992

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	25	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	25	1,0

¹ delete or add other activities as appropriate