Level: Bachelor

Course title: Analytical Chemistry I

Status: Obligatory

ECTS: 9

Requirements: None

Learning objectives

- Providing students with necessary methodical foundation (both theoretical and practical) of qualitative chemical analysis as a basis for further understanding and application in other chemistry disciplines.
- Providing balanced knowledge on key analytical concepts and application of analytical methods.
- Developing practical skills to apply standard methodology in solving problems during analytical chemistry course, as well as in further education or in profession.

Learning outcomes

After successful completion of the course, a student is able to:

- List and explain procedures and applications of analytical methods in modern chemistry and in contemporary environment.
- Demonstrate acquired knowledge and understanding of the basic facts, terms, principles and theories of qualitative chemical analysis.
- Identify cations and anions present in a sample, applying standard separation techniques, and analyze data obtained by qualitative analysis of mixtures.
- Apply appropriate laboratory procedures in solving practical problems in qualitative analysis of the given samples.
- Adequately operate the basic equipment in the analytical laboratory, safely handles the reagents and knows potential hazards and risk assessment in practical work.
- Independently draw conclusions and write reports on the results of the qualitative analysis.

Syllabus

Theoretical instructions

Basic principles, topics and branches of analytical chemistry. Analytical measurements (mass, volume). Qualitative chemical analysis and analytical reactions. Acid-base equilibria in analytical chemistry. Precipitation in qualitative analysis. Systematic qualitative analysis of cations. Redox reactions in analytical chemistry. Qualitative analysis of anions. Qualitative analysis of selected materials. Chromatography in qualitative analysis.

Practical instructions

Systematic cation analysis. Analysis of anions. Analysis of alloys. Chromatography. Analysis of unknown sample.

Weekly teaching load				Other: /
Lectures: 3	Exercises: 2	Other forms of teaching: 4	Student research: /	