KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez Unię Europejską w ramach Europejskiego Funduszu Społecznego

UNIA EUROPEJSKA
EUROPEJSKI
FUNDUSZ SPOŁECZNY

Course title	ECTS code
Inorganic synthesis	13.3.0537

Name of unit administrating study

null

Studies

faculty	field of study		
Wydział Chemii	Chemia	type	pierwszego stopnia
		form	stacjonarne
		specialty	analityka i diagnostyka chemiczna
		specialization	wszystkie

Teaching staff

dr hab. Dariusz Wyrzykowski; dr inż. Krzysztof Żamojć; dr Aleksandra Tesmar

Forms of classes, the realization and number of hours

Forms of classes

Laboratory classes

The realization of activities

classroom instruction

Number of hours

Laboratory classes: 45 hours

ECTS credits

3
classes - 45 h
tutorial classes – 10 h
student's own work – 10 h

Total: 75 h - 3 ECTS

The academic cycle

2024/2025 winter semester

Type of course

obligatory

Language of instruction

polish

Teaching methods

This laboratory will provide an introduction to the synthesis, and characterization of inorganic compounds. The student will conduct basic synthetic laboratory procedures and understand and interpret information from a variety of analytical characterization techniques. Students will complete a series of structured, interconnected laboratory experiments derived from the current literature.

Form and method of assessment and basic criteria for eveluation or examination requirements

Final evaluation

Graded credit

Assessment methods

- ssignment work – conducting research and presenting results
- graded course credit based on individual grades obtained during the semester

The basic criteria for evaluation

Mid-term tests
Reports

Method of verifying required learning outcomes

Required courses and introductory requirements

A. Formal requirements

Completed courses in Inorganic chemistry and coordination chemistry

B. Prerequisites

Aims of education

- an acquaintance of students with the methods of synthesis and purification inorganic and coordination chemistry,
- introduce the students into the use of the most common characterization methods in inorganic and coordination chemistry, insisting on the most basic theoretical aspects,
- an acquaintance of students with the basic, modern and advanced methods for studying the structure and physicochemical properties of inorganic and coordination compounds,
- a presentation the most important contemporary issues of inorganic and coordination chemistry,
- a development of the ability for planning and carrying out a single-handed experiment as well as interpreting obtained data,

- a development of the ability for using bibliographical sources about inorganic and coordination chemistry.
- a development of the ability for interpreting results of the experiments and resolving problems concerning chemical laboratory practice

Course contents

Synthetic methods of coordination and inorganic chemistry, laboratory methods used in the preparation of inorganic and coordination compounds, quantitative and qualitative analysis of the obtained chemical compounds, physicochemical properties of inorganic and coordination compounds, physico-chemical characteristics of inorganic and coordination compounds (instrumental techniques used for assessment of control quality).

Bibliography of literature

Literature required to pass the course
Praca zbiorowa – Ćwiczenia laboratoryjne z chemii nieorganicznej - skrypt UG, Gdańsk 2011
Extracurricular readings
A. Bielański – Podstawy chemii nieorganicznej, PWN 2002
J M. Cieślak-Golonka, J. Starosta, M. Wasielewski – Wstęp do chemii koordynacyjnej
L. Jones, P. Atkins – Chemia ogólna, PWN 2004
B. Literatura uzupełniająca
Coordination Chemistry Reviews – czasopismo naukowe

The learning outcomes (for the field of study and specialization)

Knowledge

Know the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. Knowledge of the Principles of Chemical Nomenclature (inorganic and coordination compounds), know the nomenclature of Coordination Complexes and inorganic compounds, know the synthetic principles of generating elements, coordination compounds and complex inorganic architectures, have a knowledge about inorganic catalysis, be able to apply the appropriate analytical techniques for the identification and characterization of inorganic compounds, be able to plan experimental work according to timeframe given and look after tidiness and safety of working area, know the application of the most important inorganic substances and coordination compounds in various branches of industry, protection of human health and everyday life.

Skills

This skills will focus in the synthesis and analysis of inorganic compounds, focusing primarily on coordination compounds and their spectroscopy, syntheses in aqueous solution "soft chemistry", structural and physical properties characterizations, use a range of physical methods to characterize chemical compounds, determine the appropriate characterization techniques for different classes of inorganic materials, determine the appropriate separation/isolation techniques for different classes of inorganic materials.

Social competence

Takes care of entrusted equipment, respects the work of his/her own and others, is ready for teamwork and substantive discussion. Has the appropriate habits of work in the inorganic chemistry laboratory, in particular with toxic and caustic substances, with the gas torch work, is acting in accordance with the principles of occupational health and safety, knows the principles of proceedings in emergency. Upgrading his/her own competences in basic level according to classes content. Has awareness of need improving own competences. Participate actively in discussions. Improves his/her social competences above program of classes. Extremely effectively participates in discussion. Creates a climate of openness and solidarity in the group

Contact

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