

Level: PhD				
Course title: Synthesis and Physicochemical Characterization of Inorganic Compounds (DSH-611)				
Status: Elective				
ECTS: 15				
Requirements: None				
Learning objectives: Up-to-date methods of synthesis and physicochemical characterization of different classes of inorganic compounds. Application of the selected physicochemical methods for characterization of coordination compounds.				
Learning outcomes: Qualifying students for synthesis and physicochemical characterization of laboratory- or technical-grade simple inorganic or coordination compounds.				
Syllabus <i>Theoretical instruction:</i> Methods of preparation, purification and physicochemical characterization of the selected classes of inorganic compounds (high and low oxidation state oxides, peroxides, selenides, nitrides, carbides, halogenides, salts of oxoacids, anhydrous salts, <i>etc.</i>). Methods of synthesis of double salts and complex compounds, chelates, chlatrates and organometallic compounds. Non-template and template methods of synthesis. Reactions of coordinated ligands. Methods of characterization: conductometric and magnetochemical measurements, IR and UV-Vis spectrometry, NMR, thermal methods of analysis, X-ray powder and single crystal diffraction. <i>Practical instruction:</i> Synthesis of selected compounds. Purification of the obtained compounds. Characterization of the purified compounds. <i>Seminar paper:</i> Synthesis and characterization of a selected compound.				
Weekly teaching load				Other:
Lectures: 5	Exercises:	Other forms of teaching:	Student research: 5	