

Level: master			
Course title: Thermal analysis of coordination compounds			
Status: elective			
ECTS: 5			
Requirements:			
Learning objectives Obtaining knowledge on thermoanalytical techniques used for characterization of inorganic and coordination compounds. Enabling students to apply the theoretical principles of analysis in practice to choose the adequate thermoanalytical technique to characterize the coordination compounds.			
Learning outcomes After completing this course, student is able to: <ul style="list-style-type: none"> - understand the principles of thermal analysis, - apply thermoanalytical techniques for characterization of coordination compounds, - to combine thermoanalytical techniques, - interpret the obtained results - estimate the temperature interval of stability/applicability of the compounds 			
Syllabus <i>Theoretical instruction</i> The effect of temperature change on the physical and chemical properties of coordination compounds. Different thermoanalytical techniques in characterization of coordination complexes: thermogravimetry (TG), derivative thermogravimetry (DTG), differential thermal analysis (DTA), differential scanning calorimetry (DSC), thermomechanical and dynamic mechanical analysis (TMA and DMA). Simultaneous methods of thermal analysis. Detection and analysis of evolved gases (EGD and EGA). <i>Practical instruction</i> Determination of thermal stability of known and new selected coordination complexes. Detecting the solvents in coordination compounds, observing the phase changes (melting, polymorphic forms, etc.) and determining the corresponding temperatures. Thermal methods for purity check. Solid state synthesis of new compounds. Explaining the mechanism of thermal decomposition.			
Weekly teaching load			Other:
Lectures: 2	Exercises: 2	Other forms of teaching:	