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| **Study program:** Chemistry (PhD) |
| **Course title: Selected chapters of inorganic chemistry (H317C)** |
| **Name of lecturer/lecturers: Nikola D. Nikolić** |
| **Type of course: elective** |
| **Number of ECTS allocated 10** |
| **Course objectives****Acquaintance of students with physico-chemical properties, reactivity, state in nature and life between s-, p-, d- and f-elements, as well as the essence of the process of formation of coordination compounds and their properties, role and importance on examples of important d-metals and their application in differentareas of human activity** |
| **Course outcomes****After mastering the course program, the student will be able to:****• looks at the importance, role and basis of application of important non-metals and metals.****• connects the state of the elements with their behavior and toxicity in the living and working environment** |
| **SYLLABUS***Lectures**s-elements. P-elements. D-series elements. Complex compounds. Organometallic compounds. Inorganic compounds in catalytic processes. Complex compounds (formation, properties, reactivity, structure). Electronic spectra of transition metal complexes. Reactions of complex compounds. Acid-base properties. Chemistry of transition metals of the I series (Ti, V, Cr, Mn, Fe, Co, Ni, Cu), II and III series. General physical-chemical properties, reactivity, chemistry of aqueous solutions, electronic structures of ions. Catalytic action of complex compounds. Complete characterization of selected d-metal ions configuration d1-d10 based on experimental results and literature data. Lanthanoids, actinoids and transuranic elements* |
| **References**1. A. Cotton, G. Wilkinson, Advanced Inorganic Chemistry. John Wiley & Sons, 1976. 2. Н. Милић, Неорганска комплексна и кластерна једињења. ПМФ Крагујевац, 1998 3. P. Atkins, T. Overton, J. Rourke, M. Wller, F. Armstrong, Inorganic Chemistry, 4th Edition. Oxford University Press, Oxford, 2006. 4. M. Gerloch, E.C. Constable, Transition Metal Chemistry. WCH Verlagsgesellchaft, Weinheim, 1994 |
| **Active teaching classes** | **Lectures 105** | **Laboratory work** |
| **Teaching mode: Interactive lectures, homework, seminar work, panel discussions** |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| activity during the lecture – 5 points; seminar work – 50 points; oral exam – 45 points |