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| **Study program:** Chemistry (PhD) | | |
| **Course title: Selected chapters of coordination chemistry (H319C)** | | |
| **Name of lecturer/lecturers: Nenad S. Krstić** | | |
| **Type of course: elective** | | |
| **Number of ECTS allocated 10** | | |
| **Course objectives**  **Expansion of existing and adoption of new and more advanced knowledge in transition metal chemistry and coordination chemistry. Getting to know the physico-chemical basics of processes and reactions involving transition metals (Mn, Fe, Cr, V, Ni, Cu and others) and build coordination compounds. Getting to know the basics of spectroscopy their characterization, as well as their application** | | |
| **Course outcomes**  **Upon successful completion of this course, the student is able to:**  **• apply newly acquired knowledge about transition metals and complex compounds,**  **• understands the physico-chemical processes in which transition metals (Mn, Fe, Cr, V, Ni, Cu and others) enter and build compounds,**  **• understands the physico-chemical bases of application of transition metals in technology, analytics (as reagents, for**  **production of new materials and catalysts), medicine (reagents and the basis of some medicines) and biology.** | | |
| **SYLLABUS**  *Lectures*  *Introduction. Symmetry of molecules. Complex compounds. Central atom, ligands, geometric structure. Formation, spectrochemical series, stabilization energy. Chemical bonding in complexes. Complexes with σ, π and δ bond. Spectral terms. Electronic spectra of transition metal complexes. Reactions complex compounds. Acid-base properties. Determining the structure. And the transition metal series. You, V, Cr, Mn, Fe, Co, Ni, Cu. Sc, Y and La. II and III series of transition metals. Zn, Cd and Hg. Catalytic effect complex compounds. Application of coordination compounds.* | | |
| **References** | | |
| **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 | | |