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| **Study program** Master Studies Chemistry | | | | |
| **Course title** Mechanisms of inorganic reactions (H221C) | | | | |
| **Name of lecturer/lecturers** Maja N. Stanković | | | | |
| **Type of course** Elective | | | | |
| **Number of ECTS allocated** 6 | | | | |
| **Course objectives**  Students will understand the theoretical foundations of reaction mechanisms of inorganic and metal-organic reactions, as well as the physicochemical foundations of important processes in which inorganic reactions take part. Connecting theoretical and applied knowledge about chemical bonds and the structure of the reaction participants with the course and mechanisms of inorganic reactions. | | | | |
| **Course outcomes**  Having finished this course successfully, a student will be able to:  - explain the properties of inorganic compounds by relating them to their structure,  - predict the reaction mechanism and products based on the known reaction conditions,  - connect the kinetic parameters and the reaction mechanism. | | | | |
| **SYLLABUS**  *Lectures*  Basic kinetic laws and kinetic behavior of complexes. Stoichiometry of metal complexes. Isomerism in octahedral and square-planar complexes. Classification of mechanisms. Substitution reactions in complexes. Oxido-reduction reactions with metal complexes. Reactions of the inner and outer spheres. Reaction mechanisms in organo-metallic systems.  *Laboratory work*  Determination of rate constants and reaction order. Monitoring the kinetics of the selected protolytic reaction. Monitoring the substitution reaction kinetics of the complex compound. Monitoring the kinetics of the redox reaction. Synthesis of metal-organic compounds. | | | | |
| **References**  1. Ivan J. Gal, Mehanizam neorganskih reakcija. Naučna Knjiga, Belgrade, 1979.  2. Ž. Bugarčić, Kinetika i mehanizam supstitucionih reakcija, PMF, Kragujevac, 1996.  3. R. B. Jordan, Reaction Mechanisms of Inorganic and Organometallic Systems. Oxford University Press, New  York, 2007. | | | | |
| **Active teaching classes** | **Lectures** 45 | | **Laboratory work** 15 | |
| **Teaching mode**  Interactive lectures, theoretical exercises, laboratory exercises, homework, panel discussions | | | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | | | |
| **Pre exam duties** | **Points** | **Final exam** | | **Points** |
| Activity during lectures | 5 | Written examination | | 50 |
| Practical teaching | 15 | Oral examination | | - |
| Teaching colloquia | 30 |  | |  |
| Seminar | - |  | |  |