UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2015/16/2
Course:	Coordination Chemistry
Code:	VEMKAKB212V
Responsible department:	Department of General and Inorganic Chemistry
Department code:	MKAK
Responsible instructor:	Dr. Lajos Fodor

Course objectives:

To attain the structure, formation, chemical properties of coordination compounds. Introduction of their role in catalytic systems and living organisms.

Course content:

1. Definition of coordination compounds, basic principles of coordination chemistry, subject of coordination chemistry. 2. Evolution and history of coordination chemistry. Nomenclature of coordination compounds. 3. Stereochemisty and isomererism of coordination compounds. 4. Methods and theories for description of the stereochemistry and electronic structure of coordination compounds: Valence Bond (VB) theory and Crystal Field (CF) theory 5. Methods and theories for description of the stereochemistry and electronic structure of coordination compounds: basic principles and application of LCAO-MO method and the Ligand Field (CF) theory 6. General characterization of complex equilibrium: types of equilibrium. 7. Equilibrium constants introduced for characterization of complex equilibrium; stepwise formation constants, stability constants. 8. Mathematical treatment of complex equilibrium; components, species, component matrix, species matrix. 9. Partial mole fraction, distribution functions of particles, complex formation (Bjerrum) function and their relationship. 10. Characteristics determining the complex stability; statistical factors and the nature and strength of metal-ligand bonds 11. Reaction kinetics and mechanism of reaction of coordination compounds; general considerations and classification. 12. Ligand exchange reaction of coordiation compounds: kinetic laws, rules and mechanism for square planar complexes 13. Kinetic laws, rules and mechanism of ligand exchange reactions of octahedral complexes 14. Kinetics and mechanisms of redox reactions; outer and inner sphere reactions. 15. On role of the coordination compounds in catalytic systems and living organisms.

Requirements, evaluation and grading:

To get at least 30% of the overall maximum points of the two test paper

Required and recommended readings:

1. Papp Sándor; Szervetlen Kémia II, Tankönyvkiadó Budapest 1983 2. F. A. Cotton and G. Wilkinson; Advanced Inorganic Chemistry John Wiley and Sons, New York, 1980

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