

212020 – ADVANCED INORGANIC CHEMISTRY I

CREDITS: 04 (four) – 60 hours/class

CONTENT:

Coordination chemistry: TLV, CBT, TOM. Coordination structures and numbers. Isomerism, reactions, kinetics and mechanism.

SYLLABUS:

1. Coordination chemistry: electronic structure of atoms, orbital shape and Russel-Saunders terms:
 - TLV: hybridization and geometry of complexes, principle of electroneutrality and retrodation;
 - TCC: octahedral symmetry: $10Dq$ measurement, crystalline field stabilization energy, strong field and weak field, tetrahedral symmetry, factors influencing the value of $10Dq$, other symmetries, electronic complex spectra, Orgel diagram;
 - TOM: sigma, pi, delta and mi bond, simple molecular orbitals for octahedral, tetrahedral and planar square compounds.
2. Coordination structures and numbers: geometry and isomerism of coordination compounds.
3. Reactions of coordination compounds.
4. Kinetics and stability of coordination compounds.

BIBLIOGRAPHY:

1. HUHEEY, J.E.; KEITER, E.A.; KEITER, R.L. Inorganic Chemistry: principles of structure and reactivity. 4.ed. Harper Collins College Publishers, USA, 1993.