**SYLLABUS –Complex compounds and their stereoisomery**

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| **Basic informations** |
| **Academic unit:**  | **FMNS- Departament of Chemistry** |
| **Name of module:** | **Complex compounds and their stereoisomery**  |
| **Level:** | **Master –Inorganic Chemistry and physics** |
| **Status of module:** | **Obligative** |
| **Year of study:** | **I (semester I)** |
| **Number of hours per week:** | **2 +2** |
|  **ECTS:** | **6** |
| **Time / loction:** |  |
| **Lecturer:** |  **Dr.sc. Albana R. Mehmeti** |
| **Contact details:**  | **Tel:** 044190022 |
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| **Module description:** |  |
| **Purpose of module:** | * *Students within frames of this module should improve theoretical basics about inorganic complex compounds and ligands: bidentat, polidentat and complexes with ligands with neutral molecules.*
* *Expand perceptions of complex compounds for inorganic complex compounds.*
* *Gain more knowledge about isomery and stereoisomery as a specific phenomenon of these compounds.*
* *Advance the understanding of the theories for explaining types of chemical bonds within the complex compounds. .*
* *Apply dfifferent concepts for explaining chemical bonding in complex compounds.*
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| **Students contribution (corresponding with their learning outcome)** |
| **Activity**  | **hour**  |  **Days/week**  | **Total** |
| Lectures | 2 | 1/15 | 30 |
| Theoretical/laboratory exercises | 2 | 1/15 | 30 |
| **Total** | **4** | **2/15** | **60** |
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| **Teaching methodology:**  | Lectures and conversation with students, laboratory exercise as well.  |
| **Method of evaluation:** | Method of evaluation will be the test by test - question final exam, taking into account the results of the first evaluation and contribution to the working seminar |
| **Literature**  |
| **Basic Literature:**  | 1. James E. Huheey; Inorganic Chemistry –Principles of structure and reactivity, University of Maryland ,
2. 'Basic Inorganic Chemistry' - F.A. Cotton, G. Wilkinson and P.L. Gaus, John Wiley and Sons, Inc. 3rd Ed., 1994. pps 165-187, 503-509, 512-517.
3. Columbia Encyclopedia. "Stereoisomers" in Encyclopedia.com, n.l., **2005**, December 2. 2008
4. 'Introduction to Modern Inorganic Chemistry' - K.M. Mackay, R.A. Mackay and W. Henderson, International Textbook Company, 5th Ed., 1996.
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| **Additional Literatur:**  | 1. Filipoviq S. Jovanoviq; Opca I anorganska kemija . Skolska Knjiga Zagreb (1985)
2. F. Basolo and R. Johnson, Cordination Chemistry, W. A. Benjamin., Inc, New York- Amsterdam 1064
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| **Teaching designed plan:**  |
| **Week** | **Lecture:** |
| ***Week one:*** | * Introduction to the plan and program of module
* Aims, purposes and objectives of this module
* Introduction of the literature
* Introduction of the plan/programm of preparative exercises.
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| ***Week two:*** | * Introduction to the stereoisomery of complex compounds
* Steroisomers of complex compounds
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| **Week three:** | * Coordinative compounds
* MA2B2, MA3B3, MA4B2, MA5B,
 |
| ***Week four:*** | * Isomerism in coordinative compounds
* Structural isomerism
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| ***Week five:***  | * Molten salts
* Nefeloauxteic effect
* Molecular orbital theory
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| **Week six:** | * Coordination numbers 3,4
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| ***Week seven:***  | * **First evaluation**
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| ***Week eight:***  | * Coordination compounds 5,6
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| ***Week nine:***  | * Absolute configuration of complexes
 |
| ***Week ten:*** | * Coordination numbers 7 and 8
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| **Week eleven:** | * Structural equilibras of complexes
 |
| ***Week twelve*:**  | * Kinetics of electrode reaction /
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| ***Week thirteen*:**  | * Kinetics and rate reactions of octaedral substitution
* Reaction of aqua ion substitution, substitution from aqua to aqua ion
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| **Week fourteen:**  | * Ligand complexes containing unsaturated hydrocarbons
* Complex compounds with different fragrant ligands
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| ***Week fifteen*:**  | * **Final evaluation**
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| **Academic policies and the codes of conduct:** |
| The presence of students in lectures as well as in laboratory exercise is an obligation. It will develop students property to interact with the conducter of the course and help them better to perceive phenomena that exists within complex compounds. While laboratory exercise will make the theory clear especially in the cases where complex compounds have same formulas but different properties and colours. They must synthesize compounds and determine their properties according to the laboratory procedures. Arrival time schedule of lectures and exercises should be respected. |