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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | Faculty  | Faculty of Science and Mathematics |
| GENERAL INFORMATION |
| Study program  | Chemistry |
| Study Module (if applicable) |  |
| Course title | Physico-chemical methods of testing the balance incomplexes |
| Level of study | ☐Bachelor ☐ Master’s x Doctoral |
| Type of course | ☐ Obligatory x Elective |
| Semester  |  ☐ Autumn xSpring |
| Year of study  |  |
| Number of ECTS allocated | 8 |
| Name of lecturer/lecturers | Milan Mitic |
| Teaching mode |  x lectures ☐Group tutorials ☐ Individual tutorials ☐Laboratory work ☐ Project work x Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *The purpose of this course is the training a students for physical and chemical analysis of the balance in complexing environments. After, student is qualified for independent scientific and professional work in solving problems in**the field of chemical complexes.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Complexes. Features. Structure. The chemical bond in the complexes. Complexes in solutions. Equilibria in solutions of mononuclear and polynuclear complexes. The balance of acid-base reactions - protonation of the ligand. Determination of the constant of protonation. The balance of the redox reaction. The composition of the complex. Constant stability. The methods of determining: general, potentiometric, spectrophotometric. Methods based on extraction, ion exchange, and solubility. Polarographic method. Nuclear magnetic resonance . The electron spin resonance. Kinetic methods. Thermodynamics of the complex. Analytical applications: gravimetric****analysis, acid-base, precipitation, complexometric, redox titration, polarography, spectrophotometry, extraction, ion exchange, electrophoresis. Practical examples** |
| **LANGUAGE OF INSTRUCTION** |
| X Serbian (complete course) ☐ English (complete course) ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)☐Serbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points** | **Final exam** | **points** |
| **Activity during lectures** | **10** | **Written examination** | **20** |
| **Practical teaching** |  | **Oral examination** | **30** |
| **Teaching colloquia** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |