|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of Science and Mathematics | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | **Chemistry** | | |
| Study Module (if applicable) | | | |  | | |
| Course title | | | | Selected chapters of electrochemical methods of analysis | | |
| Level of study | | | | Bachelor  Master’s  Doctoral | | |
| Type of course | | | | Obligatory  Elective | | |
| Semester | | | | Autumn Spring | | |
| Year of study | | | | first | | |
| Number of ECTS allocated | | | | 8 | | |
| Name of lecturer/lecturers | | | | Ivana Rašić Mišić | | |
| Teaching mode | | | | Lectures Group tutorials  Individual tutorials  Laboratory work  Project work  Seminar  Distance learning  Blended learning  Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| *The purpose of subject is that students, who have already finished courses about classic and instrumental analytical methods, gain necessary knowledge about very sensitive and selective electrochemical methods of analysis that have broad application in analysis of biological materials, industrial and environmental samples. The student will be prepared to conduct research project, optimize and improve sensitivity of electrochemical methods of analysis applied to complex samples.* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| **Coulometry. Controlled-current coulometry (coulometric titrimetry). Controlled-potential coulometry (potentiostatic coulometry). Coulometric determinations. Coulometric metalometry. Galvanocoulometric determination. Semimicrocoulometric determinations.**  **Principles of voltammetric measurements. Voltammetric instrumentation. Working electrode: mercury, solid electrodes. Chemical modifications of electrodes.**  **Electrocapillary curve and charging or capacitive current. Absorption current. Catalytic current and catalytic wave. Polarographic maxima.**  **Voltammetric biosensors: enzyme electrodes, DNA sensors. Classic voltammetric techniques.**  **Improvements of polarographic techniques. Impulse techniques. Alternating current methods. Stripping methods. Voltammetric titrations.**  **Linear Sweep Voltammetry and Cyclic voltammetry. Flow-injection voltammetric analysis. Chonoamperometry. Directions of development of electroanalytical methods of analysis.** | | | | | | |
| **LANGUAGE OF INSTRUCTION** | | | | | | |
| 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** | | | **10** |
| **Practical teaching** | **20** | | **Oral examination** | | | **20** |
| **Teaching colloquia** | **40** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |