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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | **Faculty of Sciences** |
| **GENERAL INFORMATION** |
| Study program  | **Chemistry** |
| Study Module (if applicable) | / |
| Course title | Advanced technologies for water treatment |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | Second |
| Number of ECTS allocated | 8 |
| Name of lecturer/lecturers | Aleksandar Bojic |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [x]  Project work [x]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| To provide an uderstanding of the modern membrane, advanced oxidation, ion exchange, sorption, electrochemical and biological processes for water treatment. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Membrane processes for water treatment: principles of membrane separation, microfiltration, ultrafiltration and reverse osmosis, membrane properties and modules. Advanced oxidation processes: homogeneous photolysis. Advanced oxidation processes: photocatalytic processes. Ion exchange in water purification: natural and synthetic zeolites, organic ion exchangers. The sorption processes for water purification: activated carbon, mineral sorbents, biological sorbents. The ultrasonic water treatment procedures. Electrochemical water treatment procedures: electrodeposition, electrocoagulation, electrooxidation, electroflotation, electroreduction, electrodisinfection. Biological water treatment procedures: aerobic and anaerobic processes. |
| **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** | **50** |
| **Seminars** | **40** | **Oral examination** | **/** |
| **Teaching colloquia** | **/** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |