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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 | Selected topics in Environmental Chemistry |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | 1st |
| Number of ECTS allocated | 8 |
| Name of lecturer/lecturers | Tatjana Andjelkovic |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| To provide knowledge of the more complex chemical processes in the environment and their interrelations. Special emphasis is given to biogeochemical processes that are placed in the unpolluted as well as polluted environment and to speciation of chemical components in the reservoars, exchange pools and flux of substances through their migration.  |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| 1. Inorganic pollutants: heavy metals – sources, properties, egzogenic influences; transformations and fate of heavy metals in the environment - Eh/pH, in soil, sedminets, water, air; radioactive nuclides
2. Organic pollutants: sources, fate, identification. Industrial chemicals (PCBs, hexachlorbenzene), pesticides (aldrine, DDT, dieldrine, endrine, hexabromobiphenyl, heptachlor, chlordane), combastion nusproducts (dioxins, PAHs, PCBs), pollutants of fosile fuels, phramaceuticals.
3. Ecotoxicology. Mechanisms pf toxicity and toxicological effects. Input of xenobiotics in the living matter. Ecotoxicity of organic and inorganic pollutants.
4. Environmental processes: ionexchange, partition, chemical and biochemical processes (hydrolisis, redox reactions, photoinduced reactions, complexations, biochemical transformations).
5. Pollutant migrations. Hydrocarbon migration. POPs migration. Heavy metals migration.
6. Thermodynamic, kinetics and mechanisms of transformation reactions.
7. Modeling of processes in the environment. Kinetic modeling. Quazy-thermodynamic modeling. Estimation of phase distribution.
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| **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** |
| **Seminar** | **20** | **Written examination** | **/** |
| **Project** | **30** | **Oral examination** | **50** |
|  |  | **OVERALL SUM** | **100** |
|  |  | **Written examination** | **/** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |