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| **Study program:** Chemistry (PhD) |
| **Course title: Modern Water Purification Processes (H337C)** |
| **Name of lecturer/lecturers: Aleksandar Lj. Bojić** |
| **Type of course: elective** |
| **Number of ECTS allocated 10**  |
| **Course objectives****Expanding and deepening knowledge in the field of techniques and technologies for water purification, u****in accordance with the increasing demands for the preservation of water resources in modern society. getting to know student with modern mechanical, physical, chemical and biological procedures for****water filtration.** |
| **Course outcomes****After completing the course, the student will be able to explain the principles and apply modern ones procedures for water purification, to perfect and improve modern purification procedures waters that are still under development and to find the most optimal and rational conditions for their application, in order to overcome the shortcomings of classical procedures.** |
| **SYLLABUS***Lectures**Membrane water purification processes: principles of membrane separation, microfiltration, ultrafiltration and reverse osmosis, characteristics of membranes and modules. Upgraded oxidation processes: homogeneous photolysis. Advanced oxidation processes: photocatalytic processes. Ion exchange in water purification: natural and artificial zeolites, organic ion exchangers. Sorption processes of water purification: activated carbon, mineral sorbents,biological sorbents. Ultrasonic procedures of water purification. Electrochemical processes water purification: electrodeposition, electrocoagulation, electrooxidation, electroflotation, electroreduction, electrodisinfection. Biological purification procedures of water: aerobic processes and anaerobic processes.* |
| **References**1. Cheremisinoff P.N., Handbook of Water and Wastewater Treatment Technologies, ButterworthHeinemann, Boston, 2002. 2. George Tchobanoglous, Franklin L. Burton, H. David Stensel, Wastewater Engineering: Treatment and Reuse, McGraw-Hill, 2003. 3. Hillis P., Membrane Technology in Water and Wastewater Treatment, The Royal Society of Chemistry, Cambridge, 2000 4. Simon Parsons, Advanced Oxidation Processes for Water and Wastewater Treatment, IWA Publishing, 2004. 5. D. Ljubisavljević, A. Đukić, B. Babić, Prečišćavanje otpadnih voda, Građevinski fakultet u Beogradu, 2004 |
| **Active teaching classes** | **Lectures 105** | **Laboratory work** |
| **Teaching mode:** lectures, project teaching, seminar, case studies |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| **Seminar- 50 points, writen examination 50 points;** |