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| **Study program:** Chemistry (PhD) |
| **Course title:** Selected Chapters of Water Purification and Disinfection (H346C) |
| **Name of lecturer/lecturers** Jelena Z. Mitrović |
| **Type of course:** elective |
| **Number of ECTS allocated** 10 |
| **Course objectives**Acquiring the necessary knowledge about the procedures for the treatment of waste water of selected pollutants, etc removing certain pollutants from water, introducing students to the basics of water microbiology, principles of water disinfection and procedures for water disinfection. |
| **Course outcomes**After successful completion of this course, the student can:- applies acquired knowledge in the field of water purification to real wastewater, that is certain pollutants,- propose and adapt the elements of the procedure for purifying certain wastewater to its origin and composition,- choose the appropriate procedure for removing certain pollutants from water and predict their regeneration,- describe and explain physical and chemical procedures for water disinfection and apply these procedures for disinfection of drinking water and wastewater. |
| **SYLLABUS**LecturesPurification of municipal wastewater. Wastewater treatment of the pulp and paper industry Treatment of wastewater from the wool and leather industry. Purification of pharmaceutical wastewater industry and the industry of cosmetic and hygienic preparations. Treatment of food wastewater industry. Wastewater treatment of the petrochemical industry. Water desalination. Removal of heavy metals from wastewater and metal recovery. Removal of grease and oil from wastewater. Removal of suspended matter from wastewater. Removal of textile dyes and surfactants from wastewater and their regeneration. Basics of microbiology and water disinfection. Oxidation disinfection Means: chlorination, chlorine dioxide, ozonation. Disinfection by oligodynamic action of ions heavy metals. UV and solar disinfection. Disinfection by filtration. Disinfection by ultrasound. Thermal disinfection. Disinfection by-products. Kinetics of disinfection processes. |
| **References**1. Далмација Б., Агбаба Ј., Клашња М. Дезинфекција воде, Природно-математички факултет, Нови Сад, 2005. 2. Ђукић Д., Гајин С., Матавуљ М., Мандић Л., Микробиологија воде, Просвета, Београд, 2000. 3. Driscoll P. T., Industrial wastewater management, treatment and disposal, 3rd ed, Water Environment Federation, Alexandria, 2008. 4. Amjad Z., The science and technology of industrial water treatment, CRC Press, Boca Raton, 2010. 5. Crittenden J., Trusell R., Hand D. Howe K., Tchobanoglous G., Water treatment: Principle and design, 3rd ed. John Willey and sons, New Jersey, 2012.  |
| **Active teaching classes** | **Lectures 105** | **Laboratory work** |
| **Teaching mode: Interactive lectures, homework, seminar work, panel discussions** |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| **Teaching colloquia 60; Oral examination 40** |