

Study program: Integrated academic studies of Pharmacy			
Type and level of the study program: integrated academic studies			
Course title: WATER QUALITY IN PHARMACY AND BALNEOLOGY (PhIII-WQUAL)			
Teacher: Nataša B. Milić, Veljko S. Krstonošić, Maja Lj. Milanović, Sanja V. Bijelović, Ksenija M. Bošković, Snežana T. Tomašević-Todorović			
Course status: elective			
ECTS Credits: 3			
Condition: Microbiology			
Course aim The acquisition of knowledge in the field of quality, usage, importance and health safety of water for various purposes in the pharmacy and balneology.			
Expected outcome of the course: Understanding the quality of water for various purposes in the pharmacy, pharmaceutical industry and balneology and their importance in the health system. Understanding the basic rules of problem-solving in the field of water quality used in pharmacy and balneology, knowledge of the principles for the selection of optimal sample preparation for water analysis.			
Course description <i>Theoretical education</i> 1. History of Balneology in the world and in our country. 2. Standards, research and education in balneology. 3. Distribution of geothermal water. 4. Quality of geothermal water and its application in the curing of various diseases 5. The importance and influence of the various ions in mineral waters on the health and quality of life. 6. Scientific quality standard of thermal water, national and international legislation of mineral water quality 7. Principles of medical hydrology, thermal medicine, aerosol therapy 8. Mineral, thermal and thermo mineral water in Serbia - the importance and development 9. The health care system, rehabilitation and modern forms of therapy in the world and in our country 10. Water as a raw material in the pharmaceutical industry. The water contaminants. Water quality in the pharmacy. The use of water in pharmacy. Pharmacopeia, the national and world legislation. 11. Water treatment in pharmacy - chemical and microbiological aspects. 12. Monitoring of water quality in the pharmaceutical industry and balneology. 13. Water quality in ophthalmic products, solutions for dialysis and in biotechnological researches. <i>Practical education: exercises, other forms of education, research related activities</i> 1. Visits to institutions that deal with this issue from different angles or visit of colleagues from professional institutions 2. Labs - Analytics (selecting the right sample, the detection and evaluation of water quality) 3. Risk analysis in water treatment in pharmacy			
Literature <i>Compulsory</i> 1. Collentro WV. Pharmaceutical Water: System Design, Operation, and Validation. Informa Healthcare New York London, 2011. 2. Baird R, Bloomfield SF. Microbial Quality Assurance in Pharmaceuticals, Cosmetics, and Toiletries (Gender, Change & Society). Taylor&Francis, 1996. 3. Dickson S. The Principles of the Chrono-Thermal System of Medicine: With the Fallacies of the Faculty, in a Series of Lectures. Long&Brothers New York, 1850. <i>Additional</i> -			
Number of active classes			Other:
Lectures: 30	Practice: 15	Other types of teaching: Research related activities:	
Teaching methods Lectures, power point presentations, seminar papers, experimental and demonstration exercises, visits to institutes.			
Student activity assessment (maximally 100 points)			
Pre-exam activities	points	Final exam	points
Lectures		Written	45
Practices	15	Oral	
Colloquium	30	
Essay	10		