

Study Programme : Master degree of Biology-Microbiology			
Degree level: Master degree			
Course Title: Microbiological monitoring			
Professor: Dragan Radnović, Jelica Simeunović			
Required/Elective Course: elective			
Number of ECTS: 7			
Prerequisites:			
Course Objective: The goal of this course is to introduce the concept of indicator organisms and their importance in monitoring of different environments (air, water, soil, food, etc.), as well as introduction to methods of detection of certain indicator groups; introduction to the standards and criteria for the relevant indicator species and risk assessment.			
Course Outcome: After successfully completed the pre-examination and examination commitments student can: distinguish the different groups of indicator microorganisms, use different methods of monitoring of appropriate indicator species or groups of microorganisms properly formulate an adequate concept monitoring for analysis and evaluation of environmental quality, able to recognize hazardous situations and correctly assess the risks.			
Course Content:			
<i>Theoretical part</i>			
1) The concept of indicator species and/or groups of microorganisms (bacteriophages, bacteria, cyanobacteria, algae, fungi, lichens) 2) Products of microorganisms as indicators of environmental quality (enzymes, toxins etc.) 3) Monitoring of indicator microorganisms in the open and closed spaces 4) Monitoring of different groups of microorganisms as indicators of water quality (drinking waters, recreational waters etc.) 5) Monitoring of relevant indicator microorganisms in the soil 6) Microorganisms in food quality control 7) Concept of risk assessment, elements and processes (identification of hazards, routes of exposure, risk characterization).			
<i>Practical part</i>			
1) Sampling for the purpose of detection and monitoring of various indicator microorganisms in different environment 2) Detection of certain microbial indicators in different environment using appropriate microbiological methods 3) Analysis of the environmental quality and assessment of potential risk with the use of appropriate standards and criteria.			
Reading List:			
1. Petrović O., Gajin S., Matavulj M., Radnović D., Svirčev Z. (1998): Microbiological investigation of surface water quality. Institute of Biology, Faculty of Sciences, University of Novi Sad.			
2. Maier R.M., Pepper I.L., Gerba Ch.P. (2000): Environmental microbiology. Academic press, London UK. (selected chapters)			
3. Dalmacija B. (2001): Quality of recreational waters. Institute of Chemistry, Faculty of Sciences, University of Novi Sad.			
4. Dalmacija B., Agbaba J., Klačnja M. (2009): Modern methods in the preparation of drinking water. Department of Chemistry, Faculty of Sciences, University of Novi Sad. (selected chapters)			
Total hours:			
Lectures: 2	Practicals: 2	Other:	Student research work: 5
Methods of instruction: Lectures using power point presentation on the video beam, exercises, consultations			
Assessment (maximum number of points 100)			
Requirements	points	Final exam	points
Active participation in lectures	2	Oral exam	40
Active participation in practicals	18		
Test(s) or	30		
Pre-exam testing	10		
Remark:			