

WATER CHEMISTRY AND MICROBIOLOGY

Title of Study Programme and Code		Type (compulsory/optional)	Cycle	Year of study when the component is delivered (if applicable)
Environment Protection Engineering, 6531EX042		Compulsory	1 st	2 nd
Semester/trimester when the component is delivered		Number of ECTS credits allocated	Language of instruction	Mode of delivery (face-to-face/e-learning/...)
4 th		4	Lithuanian	Face-to-face, distance learning
Learning outcomes			Study methods	Assessment methods
After completion of the study subject, a student should be able:			An interactive lecture; Situation analysis; Legislative analysis, analysis of the literature in preparation for test; Individual reading/preparation for practical works; Practical measuring of pollutant concentration; Consulting.	Test; Defending of laboratory works.
LO 1	To describe indicators of drinking, surface water and wastewater quality.			
LO 2	To take, preserve and transport the samples of water.			
LO 3	To identify the physical properties of water, the biochemical oxygen demand BOD ₇ , nitrate concentration and to perform the microbiological research.			
LO 4	To analyze the state of water based on current legislation.			
Prerequisites (these courses must be sucessfully completed prior to taking this particular course)				
Chemistry, Basics of Law, Environmental Policy and Law, Ecology and Environment.				
Course content				
1. Water and waste water samples. Sampling, preservation. 2. Physical-chemical water quality indicators. 3. Drinking water toxic (chemical) and indicative targets. Groundwater protection. 4. Drinking water treatment chemical processes. 5. Water quality regulation of surface water. Pollution regulation of waste water released in the the natural environment. 6. River water chemistry. 7. Lake water chemistry. 8. Water microorganisms, their role and water quality legal regulation. 9. Organisms of open water bodies. 10. Microbiological quality indicators of drinking water. 11. Microbiological processes of biological water purification. 12. Pathogenic microorganisms. Spreading of infectious diseases through water.				
Recommended or required reading and other learning resources/tools				
1. Novotny Vladimir (2003) Water Quality: diffuse pollution and watershed management . New York [N.Y.] : John Wiley & Sons.				

2. Hill, M., K. (2010, Reprinted 2011) Understanding Environmental Pollution. Cambridge: Cambridge University Press. ISBN: 9780521736695.
3. Water chemistry. <http://moodle.utenos-kolegija.lt/course/view.php?id=190>