

<b>Study Programme:</b> Bachelor Academic Studies in Chemistry - Quality Control and Environmental Management			
<b>Course Unit Title:</b> Water Protection			
<b>Course Unit Code:</b> KK-304			
<b>Name of Lecturer(s):</b> Associate Professor Đurđa Kerkez, Associate Professor Dragana Tomašević Pilipović, Associate Professor Jelena Molnar Jazić			
<b>Type and Level of Studies:</b> Bachelor of Science Degree			
<b>Course Status (compulsory/elective):</b> Compulsory			
<b>Semester (winter/summer):</b> Summer			
<b>Language of instruction:</b> English			
<b>Mode of course unit delivery (face-to-face/distance learning):</b> Face-to-face			
<b>Number of ECTS Allocated:</b> 8			
<b>Prerequisites:</b> None			
<b>Course Aims:</b> Train students for management and control of water protection, quality control of natural and waste water, management and wastewater treatment.			
<b>Learning Outcomes:</b> Mastering the necessary knowledge about the chemical processes in aquatic ecosystems. Understanding the process of wastewater treatment and control of equipment for waste water treatment			
<b>Syllabus:</b>			
<i>Theory</i> Introduction to the hydrologic balance of quality indicators and elementary considerations of natural waters. Studying processes in natural waters, as well as the processes that lead to chemical, biological and thermal water pollution. Mastering the behaviour of specific processes of chemical pollutants in water and production of waste water (municipal, industrial, and urban). Understanding basic wastewater treatment processes: mechanical, chemical and biological processes. Reuse of waste water, treatment and disposal of sludge from the wastewater treatment process. The joint treatment of municipal and industrial wastewater. The standard methodology for controlling the operation of a wastewater treatment plant. Mastering the basics of operation management.			
<i>Practice</i> Determination of physico-chemical, organic and inorganic water quality parameters and data interpretation. Determination of the solubility of gases, oxidation-reduction potential of water distribution coefficient in the water / sediment for selected materials. Sampling, methods of measurement of the amount of wastewater and definition of parameters to be analyzed according to the type of manufacturing process. Determination and interpretation of the technological parameters of the process of wastewater treatment in order to control the treatment plant. Computational exercises related to their respective areas. Use of a software package for calculating parameters in the wastewater treatment process.			
<b>Required Reading:</b> 1. WEF, Operation of Municipal Wastewater Treatment Plants: Volume II-Liquid Processes, Sixth Edition, 2008.			
<b>Weekly Contact Hours:</b> 7	<b>Lectures:</b> 3	<b>Practical work:</b> 3	<b>Other forms of teaching:</b> 1
<b>Teaching Methods:</b> Lectures, laboratory work and seminar			
<b>Knowledge Assessment (maximum of 100 points):</b> 100			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class participation	5	Written exam	40
Practical work	20		
Preliminary exam	20	Oral exam	10
Seminars	5		