

Title	Water Chemistry						
Code	ZDIK27						
Study Program	Postgraduate (doctoral and specialist) University study programs - Environment Protection and Nature Conservation						
Semester	III						
ECTS	5						
Status	<input type="checkbox"/> obligatory X selective						
Lecturer	Mirna Habuda-Stanić, PhD, Assistant Professor						
Co-Lecturers	-						
Requirements for Enrolment	Enrolled doctoral studies						
Objectives	Introduction to the chemical composition of water, acidity and alkalinity of waters. Occurrence of carbonate and bicarbonate in waters and buffer capacity of waters. Introduction to the processes of deposition and dissolution in aquatic environment depending on the water chemistry and the proportion of oxide, hydroxide and mineral components present in the water. Introduction to the redox conditions of individual water bodies and its impact on the chemical composition of natural waters with the review to regulation possibilities of the chemical composition of water. Introduction to occurrence of metals and heavy metals in water bodies as well as to treatment methods for their regulation. Introductions to water quality parameters and determination of water body quality. Introduction to various pollutions of the water environment. Introduction to measures for water protection.						
Learning Outcomes	<ol style="list-style-type: none"> 1. acquiring knowledge of the water chemistry and its impact on water bodies and entire environment 2. acquisition competences for determining the water chemistry 3. acquiring competences for assessment quality of the water environment 4. acquiring competences for water body management (selection of protective or remediate measures) 						
Connection between Learning Outcomes, Curricular and Student Activities	Student Activities	ECTS	Learning Outcomes	Curricular Activities	Methods of Assessment	Credits*	
						min	max
	Lectures	1	1-4	attending lectures	records of the presence	0	1
	Seminar	1	1-4	seminar writing	seminar work	0	1
	Knowledge Testing	1,5	1-4	writing exam	written examination	0	1,5
	Knowledge Testing	1,5	1-4	oral exam	oral examination	0	1,5
Total	5					0	5
Consultations							
Learning Activities	Lectures		Seminars		Practice		
Hours	10		5		0		
Contents / Teaching Units	Chemical composition of natural waters. Acidity and alkalinity of waters. Occurrence of carbonate and bicarbonate in waters and buffer capacity of waters. Processes of deposition and dissolution in aquatic environment. Buffering capacity of aquatic systems. Mineral components present in the water. Metals and heavy metals in the water. The influence of the chemical composition of the water resources on the environment. Redox conditions of aquatic systems. Water quality parameters - indicators of the water quality. Methods for monitoring of water environment. Protection or remediation of the water environment.						

Obligatory Literature	<ol style="list-style-type: none"> 1. Kemmer, F.N. 2005. Nalkov priručnik za vodu, Drugo izdanje, Građevinska knjiga, Beograd 2. Sincero A.P.; Sincero G.A. Physical-chemical treatment of water and wastewater, IWA-CRC Press, Washington D.C. 2003. 3. American Water Works Association. Water Quality and Treatment, McGraw-Hill, Inc., New York, 1999. 4. Tedeschi, S.: Zaštita voda. HDGI, Zagreb, 1997
Recommended literature	Scientific papers published in international journals (original research papers, review articles)
Requirements for Aquiring Signature	Class attendance, completed and evaluated seminar work
Type of Exam	Written and Oral exam
Lectures Language	Croatian and English
Quality Monitoring	Standard quality assurance procedures due to the guidelines of Quality Board of Josip Juraj Strossmayer University of Osijek (evaluation of the work during the semester, evaluation of the work after the end of classes etc.)