Faculty of Civil Engineering and Environmental Sciences									
Field of study								Degree level and programme type	BSc.
Specialization/ diploma path								Study profile	Academic profile
Course nome	Analytical chemistry							Course code	IS-FCEE-00227S
Course name		,	haiyti		ennsu	у		Course type	Erasmus
Forms and number of hours of tuition	L	С	LC	Ρ	SW	FW	S	Semester	Summer
		15	30					No. of ECTS credits	4
Entry requirements	General chemistry								
Course objectives	The aim of the course is to learn students different classical analytical (titration methods, gravimetric analysis) and instrumental methods (such as spectroscopy or chromatography) used in the analysis of liquid samples.								
Course content	<u>CLASSES:</u> Stoichiometric calculations performed during titration analysis; pH calculations; solubility product constant calculations; concentration conversion. <u>LABORATORY</u> : Determination of the most important physicochemical parameters of water samples including: water hardness, content of chloride ions, sulfate ions, nitrate ions, cations of various metals, selected organic compounds and many other by the use of weight method, titration, spectrophotometric, flame photometry, high performance liquid chromatography.								
Teaching methods	classes – calculations; research laboratory								
Assessment method	classes – tests, colloquium; laboratory - reports, tests before each laboratory. colloquium								
Symbol of learning outcome	Learning outcomes for t					Reference to the learning outcomes for the field of study			
L01	student knows the basic methods of physico-chemical analysis OOO22 W0						IS-FCEE- OOO22_W07		
LO2	student can use basic laboratory equipment, plan and carry out simple chemical experiments, interpret the obtained results, perform appropriate calculations and draw correct conclusions as well as develop documentation of completed experiment								IS-FCEE-OOO22_U02
LO3	student can obtain information from the scientific literature and other sources; properly use the acquired information, can verify them and interpret them					IS-FCEE-00022_U15			

COURSE DESCRIPTION CARD

LO4	student is ready to explain cognitive and practical problems, consults other people in the event of a problem	IS-FCEE-OOO22_K03					
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed					
LO1	test, colloquium	L	С				
LO2	colloquium, laboratory report	C, LC					
LO3	test, colloquium, laboratory report	LC					
LO4	colloquium	C, LC					
	No. of hours						
Calculation	attendance at classes	15					
	attendance at laboratory classes	30					
	preparation for tests, colloquiums; preparation of reports	30					
	attendance at consultations	5					
	TOTAL:	80					
	Quantitative indicators HOURS						
Student work	50	2					
Student workload – practical activities 60							
Basic references	M. Kalinowska, M. Samsonowicz, G. Świderski, R. Świsłocka, M. Walery, "Practical analytical techniques used to determine selected physicochemical indicators of water quality", Bialystok University of Technology, 2021 https://wb.pb.edu.pl/2021/12/14/skrypt-dydaktyczny-praktyczne-techniki-analityczne- stosowane-do-okreslania-wybranych-fizykochemicznych-wskaznikow-jakosci-wody/ Saternus M., Fornalczyk A., Chemistry for every student, Politechnika Śląska, Gliwice, 2013 Chojnacki J., Dołęga A., Dręczewski B. Selected topics in general and inorganic chemistry, Politechnika Gdańska, Gdańsk, 2001 Instructions for laboratory exercises, available at the Department of Chemistry, Biology and Biotechnology						
Supplementary references	Crowe J., BradshawT., Chemistry for the Bioscience, Oxford University Press, Oxford, 2010. Housecrott C.E., Inorganic chemistry, Pearson Education, Harlow, 2008						
Organisational unit conducting the course	Department of Chemistry, Biology and Biotechnology	Date of issuing the programme					
Author of the programme	Assoc. Prof. Monika Kalinowska, DSc, PhD	10.03.2023					

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,

S – seminar