

Faculty of Civil Engineering and Environmental Sciences									
Field of study								Degree level and programme type	
Specialization/ diploma path								Study profile	academic profile
Course name	Environmental Monitoring							Course code	IS-FCEE-00106W
								Course type	Erasmus
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter
			30					No. of ECTS credits	3
Entry requirements	Basic information about environmental chemistry; basic skills for working in a laboratory								
Course objectives	During the first class students will learn about safety regulations in the laboratory and class content. They will be informed about grading criteria, writing a laboratory report and its content. Instructor will clarify all reasonable questions students might have relative to the course objectives. During next classes students will learn about selected physicochemical properties of water and soil. The study results must be compared to current domestic regulations in the final report.								
Course content	Work safety regulations. Water and soil sampling. Characterisation of water samples (pH, chemical oxygen demand, phosphates, nitrates, electrolytic conductivity, calcium and magnesium). Characterisation of soil samples (pH, available phosphorus and magnesium, determination of Zn and Ni). Interpretation of study results with regard to current domestic regulations.								
Teaching methods	Laboratory class								
Assessment method	Evaluating the student's report								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
L01	collects and preserves environmental samples							IS2_W01	
L02	estimates basic physicochemical indexes of water and soil							IS2_W01, IS2_U05	
L03	describes the study results with regard to current regulations							IS2_U01, IS2_U05 IS2_U09	
L04	student is aware of non-technical aspects of engineering activities							IS2_K05	
L05	student is able to work in a team							IS2_U12	
L06									
Symbol of learning outcome	Methods of assessing the learning outcomes							Type of tuition during which the outcome is assessed	
L01	evaluating the student's preparation for the classes							LC	

L02	evaluating the student's reports and preparation for the classes	LC	
L03	evaluating the student's reports	LC	
L04	evaluating the student's preparation for the classes	LC	
L05	evaluating the student's preparation for the classes	LC	
L06			
Student workload (in hours)		No. of hours	
Calculation	participation in classes, laboratory classes, etc.	30	
	preparation for classes, laboratory classes, projects, seminars, etc.	8	
	work on projects, reports, etc.	10	
	participation in student-teacher sessions related to the class / seminar / project	5	
	preparation for and participation in exams/tests	22	
	TOTAL:	75	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		40	1.5
Student workload – practical activities		70	2.5
Basic references	1.Popek E. P. Sampling & Analysis of Environmental Chemical Pollutants. Academic Press, 2003 2. Pepper I.L., Gerba C.P., Brusseau M.L. Environmental and Pollution Science. Academic Press, 2006 3. Chunlong C. Z. Fundamentals of Environmental Sampling and Analysis. Wiley-Interscience, 2007 4. Alloway B.J., Ayres D.C. Chemiczne podstawy zanieczyszczenia środowiska. Wyd. Nauk. PWN, 1999		
Supplementary references	1. Szczykowska J.E., Siemieniuk A. Chemia wody i ścieków. Oficyna Wydawnicza PB, Białystok 2010 2. Hermanowicz W. , Dojlido J. i in. Fizyczno-chemiczne badanie wody i ścieków. Arkady, Warszawa, 1999		
Organisational unit conducting the course	Department of Technology and Environmental Engineering	Date of issuing the programme	
Author of the programme	Ph.D., Adam Łukowski	25.02.2020	

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