

COURSE DESCRIPTION CARD

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 protection with elements of toxicology							Course code	IS-FF-00046S	
								Course type	Erasmus	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer	
	15		15					No. of ECTS credits	3	
Entry requirements	-									
Course objectives	Familiarize students with the procedures of operation under the influence of toxic substances in the environment. Acquisition of the skills of research and analysis of selected causal causes of human activity.									
Course content	<p>Lecture: Classification of compounds polluting the environment. Environmental factors. Mechanisms of biodegradation of toxic compounds in the environment. Bioaccumulation and biomagnification. Radioactive compounds. Pollution of surface and underground waters. Water protection methods. Air pollution. The problem of waste. Noise and acoustic maps. Impact of fertilizers and pesticides on the environment. Threats to forest ecosystems. Environmental protection in Poland, the EU and in the world.</p> <p>Laboratory: Calculation of solution concentrations. Assessment of the impact of air pollution on the natural environment. Determination of the toxicity threshold of salt used to sprinkle roads. Determination of morphological and physiological changes in plants resulting from environmental changes. Evaluation of the reaction of <i>Daphnia</i> sp. crustaceans to a solution of a selected chemical compound or sewage. Determination of the degree of harmfulness of chemicals used in the household on plants. Methods of selective action of pesticides on plants. Food contaminants. Influence of sewage components on plant germination and their structure. Physical and chemical pollution of waters and soils.</p>									
Teaching methods	Lecture, laboratory, discussion									
Assessment method	Lecture - written exam, presentation; laboratory - laboratory reports									
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study		
LO1	The student knows the basic toxic substances and describes their action							L1P_W06		

L02	classifies and discusses anthropogenic threats to the environment	L1P_W06	
L03	performs measurements of parameters of processes and reactions occurring under the influence of toxic substances	L1P_U02	
L04	develops the empirical data obtained from the measurements and then analyzes the results for the conducted biological and chemical tests	L1P_U04	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	The grade for passing the lecture	L	
L02	The grade for passing the lecture	L	
L03	The grade for passing the lecture	LC	
L04	Evaluation of exercises performed in class	LC	
Student workload (in hours)		No. of hours	
Calculation	participation in lectures	15	
	participation in laboratory	15	
	participation in consultations	5	
	preparation for reports	10	
	preparation for passing the lecture, presentation	5	
TOTAL:		50	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		35	1,4
Student workload – practical activities		25	1
Basic references	<ol style="list-style-type: none"> Jaworski R., Dygas-Ciołkowska L. 2001. The main problems for the environment in Poland, Warsaw : Inspection for Environmental Protection Dzienis L. 2009. Water protection systems in agricultural and industrial regions : selected problems, Olsztyn : HARD Fawell J.K, Hunt S. 1988. Environmental toxicology : organic pollutants, Chichester : Horwood Ellis 		
Supplementary references	<ol style="list-style-type: none"> Szwejkowski Z., Banaszkiwicz B. 2009. Environmental aspects of climate changes : monograph, Olsztyn : Department of Land Reclamation and Environmental Management. University of Warmia and Mazury 		
Organisational unit conducting the course	Department of Forest Environment	Date of issuing the programme	
Author of the programme	Małgorzata Rauba, Ph.D. Eng.	28.03.2023	

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