

INFORMATION ABOUT THE COURSE

1. Basic data

Course name	Soil Protection and Remediation
Field of study	Agriculture
Study level	Second cycle
Study profile	Academic
Study form	Full time
Speciality	Agronomy and Agribusiness Environmental Management
Unit running the course	Department of Soil Science and Soil Protection
Name(s) and scientific degree (title) of teacher(s)	Szymon Rózański, PhD
Introductory courses	Soil Science
Prerequisites	Knowledge of English

2. Semester schedule according to the program

Semester	Lectures	Classes	Laboratories	Project classes	Seminars	Field practice	ECTS
I	15						1

3. EDUCATIONAL OUTCOMES (acc. to National Qualification Framework)

No.	Description of the outcomes	Reference to the major specific outcomes of education	Reference to the area specific outcomes of education
KNOWLEDGE			
W1	Student has extensive knowledge of soil habitat factors and knows advanced methods, techniques, tools and materials used in their assessment and development. He/she can define concepts about soil, its protection, remediation, know-how of soil degradation factors and factors and processes responsible for the state of the environment and the influence of agricultural production on soil condition.	K_W06	R2A_W01 R2A_W05
W2	Student has an extensive knowledge of the phenomena and physicochemical processes taking place in ecosystems.	K_W04	R2A_W01
SKILLS			
U1	Student is fluent in English for communication, including in agriculture, at the level B2+ of the Common European Framework of Reference for Languages (CEFR). He understands specialized texts in this field (mainly in the field of soil science) and is able to communicate this information in a variety of forms.	K_U08 K_U09	R2A_U08 R2A_U09 R2A_U10
U2	Student knows and is able to identify waste generated in agricultural and industrial production and is able to identify techniques to minimize their environmental impact. He can use the measurement techniques used in the protection and reclamation of soils. He/she has the ability to design elements and all technologies in the field of environmental protection, especially agricultural.	K_U15 K_U16	R2A_U04 R2A_U05 R2A_U06
SOCIAL COMPETENCES			
K1	Student knows the problem of the degradation of the natural environment, including soils and methods of its reclamation, related to the diversity of factors affecting the environment, including threats	K_K04 K_K07	R2A_K05 R2A_K06

	resulting from farming activities.		
K2	Student has the ability to work in a team, is creative and prepared to plan and undertake tasks in the field of soil protection and remediation, including ethical, personal and the subject-related priorities.	K_K03 K_K07	R2A_K02 R2A_K04

4. TEACHING METHODS

Multimedia lecture

5. METHODS OF EXAMINATION

Written examination - test

6. TEACHING CONTENTS

Introduction of terminology. Chemical and physical soil degradation. Soil protection. Major types of inorganic soil pollutants. Major types of organic soil pollutants. Bioavailability of contaminants in soils. Remediation methods. Landfill projects and remediation. Soil vulnerability to degradation, natural and anthropogenic changes in soil cover; erosion; biological degradation; physical degradation of soils; chemical pollution; behavior of inorganic contaminants in soils; heavy metals; soil salinity, radionuclides in soils, soils as organic waste disposal sites, physico-chemical and chemical methods of soil remediation, microorganisms involved in soil decontamination, phytoextraction, soil quality indicators, monitoring of changes in the soil environment.

7. VALIDATION OF LEARNING OUTCOMES

Outcome	Oral exam	Written exam	Test written	Project
W1			x	
W2			x	
U1			x	
U2			x	
K1			x	
K2			x	

8. LITERATURE

Basic literature	Kabata-Pendias A., Mukherjee A.B., 2007: Trace Elements from Soil to Human. Springer-Verlag Berlin Heidelberg Marcel van der Perk 2006: Soil and water contamination. Taylor & Francis Group plc, London, UK
Supplementary literature	Luthy R.,G. 2003: Bioavailability of contaminants in soils and sediments. The national academies press, Washington, D.C. Shukla M.K.,2011: Soil Hydrology, Land Use and Agriculture. CAB International Brevik E.C., Burges L.C., 2013: Soils and human health. Taylor & Francis Group, LLC

9. STUDENT'S WORK – BALANCE OF HOURS AND ECTS POINTS

Student's performance	Number of hours
Class attendance specified in p. 2	15
Involvement in classes	5
Study of literature	5
Others (preparation for exams, tests, engagement in projects etc.)	5
Student's total performance	30
Number of points proposed by NA	1
Final number of ECTS points (determined by the Educational Board)	1

