Title	**Soil chemistry and physics**
Code	ZDIP35
Study Program	Postgraduate Interdisciplinary University Programme Environment protection and Nature Conservation
Semester	III.
ECTS	5
Status	elective
Lecturer	full professor Irena Jug, PhD
Co-Lecturers	full professor Vesna Vukadinovic, PhD
Requirements for Enrolment	
Objectives	The aim of subject is familiarize the students with the chemical and physical soil properties, their role and the application of chemical and physical principles to the study of soil as independent formations and as a substrate for plant production. Through the seminar, students will independently handle specific topics based on scientific papers in relevant scientific databases.
Learning Outcomes	Students will be able to: 1. define and explain the chemical and physical properties of the soil and their effect on the fertility of agricultural production areas with the care for environment, 2. identify patterns of deterioration of physical and chemical properties of soil, 3. interpret the results of physical and chemical parameters, 4. create an independent essay in the field of soil chemistry and physics.

Connection between Learning Outcomes, Curricular and Student Activities

Student Activities	ECTS	Learning Outcomes	Curricular Activities	Methods of Assessment	Credits*	
					min	max
Class attendance	0,7	1-4	Attending lectures	evidence	5	15
Seminar work	1,3	1-4	Seminar	assessment according to predefined criteria	15	25
Reviewing learning	3,0	1-4	Final exame	Oral exam	35	60
Total	**5**				**55**	**100**

Consultations			
Learning Activities	**Lectures**	**Seminars**	**Practice**
Hours	10	5	
Contents / Teaching Units	The composition of the soil. The mineral and organic matter of the soil and their role in chemical processes. Sorption materials. The elements in the soil. Soil solution (reaction solution, buffering, oxidation-reduction potential). Soil texture and structure. Soil density, porosity, consistency and plasticity.		
Obligatory Literature	1. Daniel G. Strawn, Hinrich L. Bohn, George A. O'Connor (2015). Soil Chemistry. John Willey and Sons. 2. Vukadinović, V., Vukadinović, V. (2011). Ishrana bilja. Sveučilišni udžbenik. Poljoprivredni fakultet u Osijeku. 3. Škorić, A. (1991). Sastav i svojstva tla (odabrana poglavlja). Zagreb: Fakultet poljoprivrednih znanosti. 4. Gajić, B. (2006): Fizika zemljišta. Poljoprivredni fakultet. Beograd.		
Recommended literature	1. Shukla, K.M. (2013). Soil Physics: An Introduction. CRC Press. 2. Hillel, D. (2004). Introduction to environmental soil physics. Elsevier Academic Press. Amsterdam		

	3. Tan, K.H. (1998). Principles of Soil Chemistry, -3rd ed., rev. and expanded, Marcel Dekker. 4. Wolt, J. (1994). Soil solution chemistry. New York: John Willey and Sons.
Requirements for Aquiring Signature	The students are required to attend lectures and independently complete a seminar.
Type of Exam	Oral exam
Lectures Language	Lectures language is Croatian. The possibility of instruction in English.
Quality Monitoring	The assesment of teachers and quality of subject via anonymous student evaluation.