Course Unit Descriptor

Study Programme: Bachelor Academic Studies in Chemistry - Quality Control and Environmental Management

Course Unit Title: Soil Protection

Course Unit Code: KK-302

Name of Lecturer(s): Full professor Srđan Rončević, Associate Professor Snežana Maletić

Type and Level of Studies: Bachelor of Science Degree

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): Winter

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 8

Prerequisites: None

Course Aims:

Introduction to the basic characteristics of soil. Mastering the basics of soil quality control, conservation measures and soil remediation techniques.

Learning Outcomes:

Students should be able to define and specify the ecological problems and consequences of soil pollution, apply the basic quality control measures and methods for soil protection; analyze the basic physical and chemical properties of soil; analyze pollutants in soil.

Syllabus:

Theory

Soil as part of the environment, the definition and basic characteristics. Soil pollution. Soil classification. Morphological, physical, chemical and biological properties. Impact of agricultural production (fertilizers, pesticides and heavy metals). Soil sampling and analysis. Methods of soil remediation, in situ and ex situ remediation, bioremediation, physic-chemical remediation. Characterization of contaminated sites.

Practice

Soil morphological properties. Chemical soil characteristics (pH, carbonate content, salinity, humus content, total organic carbon content). Soil colloids surface reactions. Physical soil characteristics (particle size distribution, soil density and porosity, water holding capacity, soil capillary rise). Soil sampling.

Calculations. Chemical soil characteristics. Physical soil characteristics. Soil reactions. Soil sampling.

Required Reading:

1. M.R. Carter and E.G. Gregorich : Soil sampling and Methods of analysis, second edition, CRC press Taylor & Francis Group, 2008.
2. P/lens, T. Grotenhuis, G. Malina and H. Tabak: Soil and sediment remediation, IWA Publishing, 2006.
3. R.E. White: Principles and practice of soil science, fourth edition, Blackwell Publishing, 2006.

Weekly Contact Hours: 6	**Lectures:** 3	**Practical work:** 2+1

Teaching Methods: Lectures, laboratory work, seminar(s)

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation	5	Written exam	40
Practical work	15		
Preliminary exam(s)	20	Oral exam	15
Seminar(s)	5		