

Course:	SOIL MELIORATION			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
14261	Optional	2	8	4+2+0
Programs	BIOTECHNICS			
Prerequisites	None			
Aims	Acquiring knowledge about the physical properties of soil and processes occurring within it; their significance for cultivation, plant growth, land improvement, and the environment; measures to improve the physical properties of the soil. Understanding the basics of soil information systems, as well as practical and useful knowledge for land management in agriculture. Gaining knowledge about soil resources and the degree of erosion threat, types of erosion processes, and classification from the perspective of agricultural production. Acquiring knowledge about methods and techniques of drainage and irrigation and their application areas. Familiarization with key aspects of constructing and maintaining drainage and irrigation systems. Training the student for the practical application of theoretical knowledge.			
Learning outcomes	After passing this exam, the student will be able to: access the determination of the physical properties of soil in the field and laboratory; interpret analytical results and present them through oral presentations and written reports; apply theoretical knowledge in the design, construction, and maintenance of drainage and irrigation systems; independently conduct meliorative-pedological studies, showcasing basic meteorological, topographic, and soil characteristics, as well as justifying proposed drainage and irrigation measures; apply knowledge in fieldwork, planning, calculating, and implementing irrigation regimes, demonstrate the ability to manage an irrigation system, and work effectively in a team; understand the dynamic functions of soil in the environment; independently and successfully operate GIS software and databases necessary for a soil information system; possess skills in problem formulation, analysis, and the use of appropriate software and hardware solutions; have the skills and knowledge necessary for successful data storage and analysis; comprehend processes of water and wind erosion; acquire the skill to apply an appropriate methodology for estimating soil loss due to erosion processes, as well as procedures for measuring the intensity of erosion processes.			
Lecturer / Teaching assistant	Doc. dr Mirko Knežević			
Methodology	Lectures, exercises, preparation of elaborate, consultations, independent work, colloquia and final exam			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	The interrelation of pedogenetic factors, processes, and fundamental soil properties and their impact on the growth of cultivated plants.			
I week exercises	Stages of soil research.			
II week lectures	Soil Physical Properties.			
II week exercises	Determination of soil physical properties in the field and laboratory.			
III week lectures	Soil Mapping.			
III week exercises	Pedological map creation.			
IV week lectures	Soil erosion by water and wind.			
IV week exercises	Methods of studying and measuring soil erosion by water and wind.			
V week lectures	Soil and water resources and their role in drainage and irrigation. Colloquium I.			
V week exercises	Spatial analysis of resources.			
VI week lectures	Land spatial arrangement.			
VI week exercises	Methods of land spatial arrangement			
VII week lectures	Surface water and groundwater utilization.			
VII week exercises	Solving computational problems related to groundwater.			
VIII week lectures	Computer systems and their application.			
VIII week exercises	GPS technology and GIS systems			
IX week lectures	Land suitability evaluation systems. Integrated land assessment systems.			

IX week exercises	Application of computerized soil research interpretative programs for assessing soil for agricultural production.					
X week lectures	Drainage methods and techniques.					
X week exercises	Calculation of basic drainage elements.					
XI week lectures	Irrigation elements and methods.					
XI week exercises	Presentation of characteristics of irrigation methods.					
XII week lectures	Crop irrigation in protected areas.					
XII week exercises	Plant water regime and microclimatic conditions for cultivation.					
XIII week lectures	Planning and designing land reclamation. Colloquium II					
XIII week exercises	Design and phases of design.					
XIV week lectures	Project-technical documentation required for the construction of reclamation facilities and systems. Types and methods of construction of reclamation facilities.					
XIV week exercises	Earthworks bill of quantities, selection of means for constructing individual reclamation facilities and systems.					
XV week lectures	Field study visit.					
XV week exercises	Practical work in the field.					
Student workload						
Per week			Per semester			
8 credits x 40/30=10 hours and 40 minuts 4 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises 4 hour(s) i 40 minuts of independent work, including consultations			Classes and final exam: 10 hour(s) i 40 minuts x 16 =170 hour(s) i 40 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 10 hour(s) i 40 minuts x 2 =21 hour(s) i 20 minuts Total workload for the subject: 8 x 30=240 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 48 hour(s) i 0 minuts Workload structure: 170 hour(s) i 40 minuts (courses), 21 hour(s) i 20 minuts (preparation), 48 hour(s) i 0 minuts (additional work)			
Student obligations			Students are required to attend lectures, have completed all exercises, tests and colloquiums			
Consultations			In agreement with the students.			
Literature			B.Fuštić i G.Đuretić(2000): Zemljišta Crne Gore, knjiga. Podgorica Živković M., Đorđević A.: Pedologija, Poljoprivredni fakultet, Beograd, 2003.; Gajić B.: Fizika zemljišta, udžbenik, Poljoprivredni fakultet, Beograd, 2006.; Gajić B.: Fizika zemljišta, praktikum, Poljoprivredni fakultet, Beograd, 2005.; Spalević B.: Konzervacija zemljišta i voda, Poljoprivredni fakultet, Beograd, 1997; Rudić D., Đurović N.: Odvodnjavanje, udžbenik, izd. Poljoprivredni fakultet, Beograd, 2006.; Miladinović M.: Uređenje zemljišne teritorije, Univerzitet u Beogradu, Beograd, 1997.; Stričević R.: Navodnjavanje: Osnove projektovanja i upravljanja sistemima, Poljoprivredni fakultet, Beograd, 2007.; Stričević R.: Projektovanje u melioracijama – praktikum, Poljoprivredni fakultet, Beograd, 2000.; Corović R., Jovanović Ž.: Izgradnja i održavanje melioracionih sistema, Poljoprivredni fakultet, Beograd, 1992.; Randolph, J.: Environmental land use planning and management. Island Pr., 2003.			
Examination methods			Homework 20 points (10 sets of 2 points each), I and II midterm exams 20 points (2x 10 points each), Classroom Participation 10 points, Final Exam 50 points. Passing grade is obtained when student achieved at least 50 points.			
Special remarks						
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points