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ERASMUS MUNDUS MASTER PROGRAMME IN SOIL SCIENCE – emiSS 2020-2021 ACADEMIC YEAR - MODULE SYLLABUS

Name of course:

AGROCHEMISTRY

ECTS	6
Type of Course	Compulsory
Form of Examination	Written Examination
Prerequisites	Basic knowledge in the soil science, agronomy, soil microorganisms, plant phisiology and biochemistry.

Field of Study:

Agriculture

Education profile	Academic
Code of study form and level of education	Master of Science
Academic year/Semester	First year/Spring Semester
Specialization	Agriculture
Language of education	English

The lecturer module:	
	Agricultural University Plovdiv BG, Faculty of Agriculture
The name of department	Ahrochemistry & Soil Science

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Description of the learning effect

KNOWLEDGE - student knows and understands: *us the soil fertility and the ability of the soil to supply plants with nutrien*

1	Student knows the soil fertility and the ability of the soil to supply plants with nutrients (nutrient availability in the soil)
2	Student knows the nutrient supply to the plant and the use of these substances by the plant in process of plant nutrition
3	Student knows the function and importance of macro and micro nutrients, the diagnosis of deficiency and excess symptoms.
4	Student knows the relation soil-plant (nutrient transport from soil to plants)
5	Student knows the mineral and organic fertilizers and the rules for their efficient use at different type of corps.





SKILLS - the graduate can

1	Student obtains the necessary scientific information from literature, databases or other sources in order to broaden and deepen his/her knowledge of study topics.
2	Student has the competence to make some basic analysis for determination of available nutrients into the soil.
3	Student will has knowledge of application of basic fertilizers on main groups of crops – field crops, vegetables, permanent crops (fruit trees and vineyards)

SOCIAL COMPETENCES - graduate:

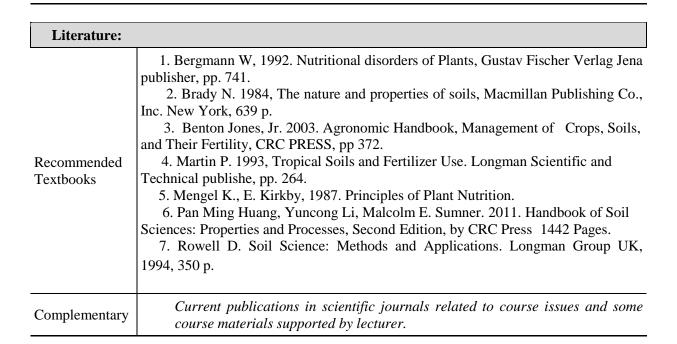
1	Student shows activity during a discussion on various issues related to transformations of forms of nutritional elements into the soil
2	Student can organize fertilization of grown crops in their farms and/or advise farmers about fertilization of crops
3	Student can work for state organizations and private companies dealing with fertilization of crops

Course objectives and content:

This course is to acquaint the graduate students with fundamental concepts of plant nutrition with essential nutrients – nitrogen, phosphorus and potassium and microelements. Students will get familier with soil and foliar nutrition of plants. Production and rules for application of the main types of fertilizers also will be studied.

		Ag	grochemistry	36	hours
Subject of lecture	1		rch methods used in Agrochemistry. Production and consumption of industrial ers in the world and in Bulgaria 3 h		
	2	Negative effects of the use of high N fertilizer norms and other fertilizers. $3 h$			
	3	Essential plant nutrients. Foliar fertilization. Physiological reaction of fertilizers 3 h			
	4	Nitrogen plant nutrition. Soil as a source of nitrogen for plants 3 h			
	5	Nitrogen fertilizers 3	Nitrogen fertilizers 3 h		
	6	Phosphorus plant nu	Phosphorus plant nutrition. Soil as a source of phosphorus for plants 3 h		
	7	Midterm exam			
	8	Phosphorus fertilizers 3 h			
	9	Potassium plant nutrition. Soil as a source of potassium for plants h			
	10	Potassium fertilizers 3 h			
	11	Plant nutrition with microelements 3 h			
	12	Soil as a source of microelements 3 h			
	13	Fertilizers containing microelements 3 h			
	14	Final exam			
The methods of verification and assessment criteria and principles			For a positive grade: student should receive at least grade 4 midterm exam and for final exams score should be greater the 4 (excellent is 6).		





Structure of learning outcomes:

The area of study: agricultural, soil science, environmental science, natural resources 6

ECTS

The structure of student activity:				
Learning Activities	Amount	Time (h)	Total work- load (h)	
Participate in lecture	12	3	36	
Participate in midterm exam	1	2	2	
Individual study for midterm exam	6	3	18	
Individual study for lectures	12	1	12	
Laboratory study	12	2	24	
Quiz				
Assignment	8	2	16	
Participate in final exam	1	2	2	
Individual study for final exam	6	3	18	
Literature critical review				
Oral exam				
Individual study for problem solution	11	2	22	
Consultations				
Participate in researches				





Mandatory practices and internships			
	Total workload (h)		150

*ECTS Credits = Total Workload (Hours) / 25 (Hours/1 ECTS) = 150 / 25 = 6 ECTS

Name Surname of Lecturer: Ivan Manolov

Sign:....

Date: 16.01.2020