

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

Name of course:	
<i>SOIL POLLUTION</i>	
ECTS	6
Type of Course	<i>Elective</i>
Form of Examination	<i>Written Examination</i>
Prerequisites	<i>Basic knowledge in the soil science, agricultural, forestry, environmental, geology or earth science.</i>

Field of Study:	
<i>Agriculture</i>	
Education profile	<i>Academic</i>
Code of study form and level of education	<i>Master of Science</i>
Academic year/Semester	<i>First year/Fall Semester</i>
Specialization	<i>Agriculture</i>
Language of education	<i>English</i>

The lecturer module:	
The name of faculty	<i>Ondokuz Mayıs Univ. Faculty of Agriculture</i>
The name of department	<i>Soil Science & Plant Nutrition</i>

Educational outcomes:

Description of the learning effect

KNOWLEDGE - student knows and understands:

1	<i>Student knows the point and nonpoint sources of soil pollution</i>
2	<i>Student knows the harmful effects of pollution on soil and plant systems</i>
3	<i>Student knows the effects of agricultural and industrial practices on soil and water pollution</i>

SKILLS - the graduate can

1	<i>Student obtains the necessary scientific information from literature, databases or other sources</i>
2	<i>Student shows the ability to correctly interpret results of soil water pollution on environment</i>
3	<i>Students analyze the factors effecting use of soil water resources</i>

SOCIAL COMPETENCES - graduate:

1	<i>Student shows activity during a discussion on various issues related to soil and agricultural engineering</i>
2	<i>Student has the competence to participate in agricultural research and discuss their results</i>
3	<i>Student illuminates community about the environmental sources and pollution.</i>

Course objectives and content:

This course teaches the effects of pollutions created by pollutants during agricultural, industrial and urban practices on soil and water resources.

Concept of ecological environment, basic factors of environmental problems, acid rains, agriculture and environment, stubble fire and its harmful effect on environment, heavy metal pollution in soil, pesticides and environment, water resources and water pollution, solid waste management, using waste water for irrigation, assessment of environmental effect and soil.

Soil Pollution

36 hours

Subject of lecture	1	<i>Ecology, environment, the main factors of environmental problems 3 h</i>
	2	<i>Causes of soil pollution, erosion and role of fertilizers in pollution 3 h</i>
	3	<i>Effects of pesticides on pollution, problems resulting from the use of pesticides 3 h</i>
	4	<i>The effect of animal wastes and irrigation water on the soil contamination 3 h</i>
	5	<i>The industrial pollutants, misuse of agricultural land, solid waste 3 h</i>
	6	<i>Environmental effects and damages of stubble burning 3 h</i>
	7	<i>Midterm exam</i>
	8	<i>The heavy metal pollution in the soil 3 h</i>
	9	<i>The factors affecting the mobility of heavy metals in soil 3 h</i>
	10	<i>The reactions of plants to heavy metal toxicity in soil 3 h</i>
	11	<i>The water pollution, types of pollutants and its sources 3 h</i>
	12	<i>The eutrophication, the factors that cause eutrophication 3 h</i>
	13	<i>The biological oxygen demand and the chemical oxygen demand 3 h</i>
	14	<i>Final exam</i>

The methods of verification and assessment criteria and principles

For a positive grade, sum of 40% of midterm (100%) and 60% of final (100%) exams should be greater than 60.

Literature:

Recommended Textbooks	1- Minkina, T.M. 2010. <i>Heavy Metal Compounds in Soil: Transformation Upon Soil Pollution and Ecological Significance (Air, Water and Soil Pollution Science and Technology)</i> . Nova Science Publishers Inc. New York, United States
	2- Yap, C.K. 2018. <i>Soil Pollution : Sources, Management Strategies and Health Effects</i> . Nova Science Publishers Inc. New York, United States



Complementary	<i>Current publications in scientific journals related to course issues and some course materials supported by lecturer.</i>
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Structure of learning outcomes:

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

The structure of student activity:

<i>Learning Activities</i>	<i>Amount</i>	<i>Time (h)</i>	<i>Total workload (h)</i>
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	10	2	20
Quiz			
Assignment	10	2	20
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 :

Sign:.....

Date: