

Universitatea din Oradea	PROCEDURA pentru inițierea, aprobarea, monitorizarea și evaluarea periodică a programelor de studii	COD: SEAQ PE – U. 01						
			4	5	6	7	8	9
			Aprobat în ședința de Senat din data: -- 17.09.2012					

Annex 6

DISCIPLINE DESCRIPTION

1. Information on the study programme

1.1 Academic institution	UNIVERSITY OF ORADEA
1.2 Faculty	FACULTY OF ENVIRONMENTAL PROTECTION
1.3 Department	ENVIRONMENTAL ENGINEERING
1.4 Field of study	ENGINEERING SCIENCE
1.5 Cycle of study	BACHELOR
1.6 Study programme/Qualification	BIOTECHNICAL AND ECOLOGICAL SYSTEMS ENGINEERING

2. Information on the discipline

2.1 Name of discipline	TECHNOLOGIES FOR PROTECTIONS AND SOIL RECONSTRUCTIONS						
2.2 Course holder	ASSOCIATE PROFESSOR ENG. RADU BREJEA						
2.3 Seminar/Laboratory/Project holder	ASSOCIATE PROFESSOR ENG. RADU BREJEA						
2.4 Year of study	IV	2.5 Semester	07	2.6 Type of evaluation	EX	2.7 Regime of discipline	C

(C) Compulsory; (O) Optional; (E) Elective

3. Total estimate time (hours per semester of didactic activities)

3.1 Number of hours per week	4	out of which: 3.2 course	2	out of which 3.3 seminar/laboratory/project	1/1
3.4 Total hours in the curriculum	56	out of which: 3.5 course	28	out of which 3.6 seminar/laboratory/project	28
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					24
Additional documentation in the library/ on specialised electronic platforms and in the field					30
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					20
Tutorship					4
Examinations					6
Other activities.....					
3.7 Total hours of individual study	84				
3.9 Total hours per semester	140				
3.10 Number of credits	4+1				

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4. Prerequisites (where appropriate)

4.1 curriculum	Conditions
4.2 competences	General knowledge of soil science, soil pollution, topography, general ecology, etc

5. Conditions (where appropriate)

5.1. related to course	PC, videoprojector
5.2. related to seminar/laboratory/ project	The specific equipment needed to carry out the practical work

6. Specific competences acquired

Professional competences	<p>C1. Explaining the mechanisms, processes and effects of anthropic or natural origin that determine and influence the environmental pollution</p> <p>C1.1 Defining the fundamental concepts needed to apply environmental theories and scientific methodology.</p> <p>C1.4 Qualitative and quantitative analysis of natural phenomena and technological processes to prevent and decrease the impact</p>
	<p>C3. Characterization and interpretation of environmental factors by analyzing physico-chemical and biotic parameters</p> <p>C3.2 Interpretation of the mechanisms through natural and anthropic factors lead to deterioration of the environment quality</p> <p>C3.3 Setting up of working methodologies to allow an investigation process</p> <p>C3.4 Using of appropriate analysis methods to characterize the environmental factors</p>
	<p>CT1. Identifying and observing the ethics rules and professional deontology, assuming responsibility for decisions taken and related risks</p> <p>CT3. Efficiency use of information sources and communication resources and assisted professional training (portals, Internet, specialized software applications, databases, on-line courses, etc.) both in Romanian and in an international language</p>

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7. Objectives of discipline (coming from the specific competences acquired)

7.1 General objective	<ul style="list-style-type: none"> The objectives of the discipline are to train students to make necessary studies of the methods of calculation and design of works for the protection and improvement of soil quality technologies.
7.2 Specific objectives	<ul style="list-style-type: none"> The improvement of polluted soils is carried out through works from various disciplinary categories. Ameliorative works are technical interventions (technologies) that are executed on lands poorly fertile or anthropic degraded soils to increase or restore the productive potential; - the training of highly qualified specialists in the field of environmental protection

8. Content*/

8.1 Course	Methods of teaching	No. of hours/Remarks
Soil as an ecosystem - a supporter of human existence and survival on Earth	Lecture, exposure, student participation	2
Intoductory notion about rehabilitation and re-cultivation technologies on polluted and degraded land	Lecture, exposure, student participation	4
Technologies of soil protection affected by moisture deficit. The irrigation regime, functional and hydromeliorative roles.	Lecture, exposure, student participation	4
Technologies of soil protection affected by moisture deficit. Methods for groundwater level evolution scheduling in irrigated areas, eliminating the risk of secondary salinisation.	Lecture, exposure, student participation	4
Technologies to protect and restore the productive capacity of soils affected by moisture excess. Water balance in drained soil, regulation of water and salts content, drainage methods	Lecture, exposure, student participation	2
Drainage systems, definition, hydro-ameliorative functional roles;	Lecture, exposure, student participation	2
Pedoameliorative technologies for soils affected by acidity. The situation of affected land in Romania.	Lecture, exposure, student participation	2
Calcium modification. Fertilization of acid soils;	Lecture, exposure, student participation	4
Recovery technologies of salty soils. Salinisation concepts.	Lecture, exposure, student participation	2
Salty soils recovery technologies. Washing of soluble salts	Lecture, exposure, student participation	2
Bibliography:		
1. Blidaru,V., Wehry,A., Pricop G. - Irrigations and drainage designs, Publ.House Interprint București, 1997;		

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2. Brejea Radu, Technologies for soils protection. Publ.House of University of Oradea, ISBN 978-606-10-1277-0, 2014.
3. Brejea R., Domuța C., Restoration and protection of land from bauxite careers from Padurea Craiului Mountains. Publ.House of University of Oradea ISBN 978-973-759-876-9. pg. 182, 2009.
4. Brejea R. Soil science: practical guidance. Publ.House of University of Oradea, 2010. ISBN 978-606-10-0193-4
5. Brejea R . Practicum of technologies for soils protection. Publ.House of University of Oradea, 2011. ISBN 978-606-10-0164-4.
6. Cazacu E., and colab., 1989- Irrigations, Publ.House CERES, București
7. Domuța C., Sabau N.C., - 2001 – Agrotehnica. Publ.House University of Oradea
8. Domuța C., Brejea R. Environment Monitoring. Publ.House of University of Oradea, 2010. ISBN 978-606-10-0187-3. pg.331
9. Nițu, I., Răuță, C., Dracea, M. -Agro-pedo-ameliorative works, Publ.House Ceres, Timișoara, 1996;
10. Orlescu M. – 2001 – General hidrotehnică. Publ.House Orizonturi Universitare Timișoara.

8.3 Laboratory/Project	Methods of teaching	No. of hours/Remarks
Situation plan, graphical representations specific to hydro-mechanical technologies, construction of longitudinal and transverse profiles	Lecture, exposure, student participation	2
The sizing of collection, transport and evacuation networks within the hydro-amelioative systems	Lecture, exposure, student participation	2
Territory affected by moisture deficiency – calculation of total water consumption and recovery times	Lecture, exposure, student participation	4
Determination of soil humidity	Lecture, exposure, student participation	2
Control of moisture deficit by scheduling the groundwater level evolution on affected land	Lecture, exposure, student participation	2
Ecological reconstruction of affected lands by local excess of humidity and salinity through the waterproofing of water channels transport	Lecture, exposure, student participation	2
Technology to eliminate the local excess of humidity - vertical drainage	Lecture, exposure, student participation	2
Ecological reconstruction of land affected by excess of humidity - horizontal drainage (calculating the distance between drains in permanent regime)	Lecture, exposure, student participation	2
Avoiding pollution of irrigated soils - calculating the basic parameters of irrigation according to the	Lecture, exposure, student participation	2

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requirements of plants and weather conditions		
Field application - visiting lands affected by moisture excess	Lecture, exposure, student participation	2
Field application - visiting lands affected by moisture excess	Lecture, exposure, student participation	2
Improvement of salty soils - Calculation of water use	Lecture, exposure, student participation	2
Teaching and designing the project		2
Bibliography:		
1 Brejea R., Domuța C., Restoration and protection of land from bauxite careers from Padurea Craiului Mountains. Publ.House of University of Oradea ISBN 978-973-759-876-9. pg. 182, 2009.		
2 Brejea R. Technologies for protections and soil reconstructions Publ.House of University of Oradea, ISBN 978-973-759-937-7, 2009.		
3 Brejea R. Brejea R. Soil science: practical guidance. Publ.House of University of Oradea, 2010. ISBN 978-606-10-0193-4		
4 Brejea R . Practicum of technologies for soils protection. Publ.House of University of Oradea, 2011. ISBN 978-606-10-0164-4.		
5 Cazacu E., și colab., 1989- Irrigations, Publ.House CERES, București		
6 Domuța C., Sabau N.C., - 2001 – Agrotehnica. Publ.House University of Oradea		
7 Domuța C., Brejea R. Environment Monitoring. Publ.House of University of Oradea, 2010. ISBN 978-606-10-0187-3. pg.331		

* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme

- By acquiring theoretical concepts and addressing the practical aspects of the field of Technologies for protections and soil reconstructions, students acquire a consistent knowledge baggage according to the competencies required for occupations provided in the RNCIS

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	Exam	Written	70 %
10.5 Seminar			
10.6 Laboratory	Periodic verification	Oral	30 %
10.7 Project	Teaching and supporting the project	Oral	100%
10.8 Minimum standard of performance			
The minimum performance standard assumes the partial acquisition of 50% of the basic			

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knowledge of the subject studied.

Date of completion

26.09.2022

Signature of course holder**

Associate professor eng. Brejea Radu
rbrejea@yahoo.com



Signature of seminar

laboratory/project holder **

Associate professor eng. Brejea Radu
rbrejea@yahoo.com



Date of approval in the department

.....

Signature of the Head of Department
Professor eng SABAU NICU CORNEL
nicusabau@yahoo.com

Dean signature

Ass.Professor eng. MAERESCU CRISTINA

** - Name, first name, academic degree and contact details (e-mail, web page, etc.) will be specified.

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