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	08	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	2
3.4 Total hours in the curriculum	40	out of which: 3.5 course	20	out of which 3.6 seminar/laboratory/project	20

Time allotment	hours
Study assisted by manual, course support, bibliography and notes	10
Additional documentation in the library/ on specialised electronic platforms and in the field	10
Preparation of seminars/laboratories/ topics/reports, portfolios and essays	10
Tutorship	8
Examinations	6
Other activities.....	

3.7 Total hours of individual study	**44**
3.9 Total hours per semester	**84**
3.10 Number of credits	**2+1**

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	

6. Specific competences acquired	
Professional competences	**C1. Explaining the mechanisms, processes and effects of anthropic or natural origin that determine and influence the environmental pollution** C1.1 Defining the fundamental concepts needed to apply environmental theories and scientifical methodology. C1.4 Qualitative and quantitative analysis of natural phenomena and technological processes to prevent and decrease the impact **C3. Characterization and interpretation of environmental factors by analyzing physico-chemical and biotic parameters** C3.2 Interpretation of the mechanisms through natural and anthropic factors lead to deterioration of the environment quality C3.3 Setting up of working methodologies to allow an investigation process C3.4 Using of appropriate analysis methods to characterize the environmental factors
Transversal competences	CT1. Identifying and observing the ethics rules and professional deontology, assuming responsibility for decisions taken and related risks 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

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

7.1 General objective	• 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	• 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
Reconstruction technologies of salty soils	Lecture, exposure, student participation	**4**
Technologies for improvement of slope soils affected by erosion	Lecture, exposure, student participation	**4**
Rehabilitation and restoration of polluted and degraded soils from mine exploatation	Lecture, exposure, student participation	**4**
Technologies for restoration and protection of soils with oil pollution and salty waters	Lecture, exposure, student participation	**2**
Restoration of land occupied by domestic landfills, mine tailings and decantation ponds	Lecture, exposure, student participation	**2**
Applying technologies aimed to creat and stabilizing the soil structures	Lecture, exposure, student participation	**2**
Rehabilitation of polluted soils using tolerant, protective and ameliorative crops	Lecture, exposure, student participation	**2**

Bibliography:

1. Blidaru,V., Wehry,A., Pricop G. - Irrigations and drainage designs, Publ.House Interprint Bucureşti, 1997;
2. Brejea Radu**,** Technologies for soils protection. Publ.House of University of Oradea, ISBN 978-606-10-1277-0, 2014.
3. Brejea R., Domuţa 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, Bucureşti
7. Domuţa C., Sabau N.C., - 2001 – Agrotehnica. Publ.House University of Oradea
8. Domuţa C., Brejea R. Environment Monitoring. Publ.House of University of Oradea, 2010. ISBN 978-606-10-0187-3
9. Niţu, I., Răuţă, C., Dracea, M. -Agro-pedo-ameliorative works, Publ.House Ceres, Timişoara,

1996;
10. Orlescu M. – 2001 – General hidrotechniqe. Publ.House Orizonturi Universitare Timişoara.

8.3. Project	Methods of teaching	No. of hours/Remarks
Establishing the technological elements necessary to improve the soil of an irrigated territory. Initial data, related surfaces	Lecture, exposure, student participation	**2**
Calculation of the total water used and the annual water used for the specified works	Lecture, exposure, student participation	**2**
Calculation of the total water used and the annual water used for the specified works	Lecture, exposure, student participation	**2**
Field application - Inventory of land affected by salinisation and erosion	Lecture, exposure, student participation	**2**
Field application - Inventory of land affected by salinisation and erosion	Lecture, exposure, student participation	**2**
Dimensioning of the drainage network required to collect washing water and associated channel networks	Lecture, exposure, student participation	**1**
Dimensioning of the drainage network required to collect washing water and associated channel networks	Lecture, exposure, student participation	**2**
Measuring the dose of gypsum amendment	Lecture, exposure, student participation	**1**
Restoration and protection of eroded soils	Lecture, exposure, student participation	**1**
Restoration and protection of eroded soils	Lecture, exposure, student participation	**1**
Recovery of land occupied by domestic landfills	Lecture, exposure, student participation	**1**
Modalities to rehabilitate the quarries from mine explotation	Lecture, exposure, student participation	**1**
Modalities to rehabilitate the decantation ponds	Lecture, exposure, student participation	**1**
Teaching and designing the project		**1**

Bibliography:

1 Brejea R., Domuţa 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., şi colab., 1989- Irrigations, Publ.House CERES, Bucureşti
6 Domuţa C., Sabau N.C., - 2001 – Agrotehnica. Publ.House University of Oradea
7 Domuţa 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

- The content of the course and laboratory classes is in line with the expectations of the scientific community, employers or professional associations, being presented the latest information.

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	100%
10.5 Seminar			
10.6 Laboratory			
10.7 Project	Teaching and supporting the project	Oral	100%
10.8 Minimum standard of performance			

Date of completion 26.09.2022

Signature of course holder**
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rbrejea@yahoo.com

Signature of seminar laboratory/project holder **
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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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