

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	FORESTRY AND FORESTRY ENGINEERING
1.4 Field of study	FORESTRY
1.5 Cycle of study	LICENSE
1.6 Study programme/Qualification	FOREST EXPLOITATION/ENGINEER

2. Information on the discipline

2.1 Name of discipline	SOIL SCIENCE						
2.2 Course holder	Lect. Dr. Eng. BODOG MARINELA						
2.3 Seminar/Laboratory/Project holder	Lect. Dr. Eng. BODOG MARINELA						
2.4 Year of study	I	2.5 Semester	II	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 out of which	5	course	2	seminar/laboratory/project	2
3.4 Total hours in the curriculum out of which	56	course	28	seminar/laboratory/project	14
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					9
Additional documentation in the library/ on specialised electronic platforms and in the field					8
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					8
Tutorship					8
Examinations					20
Other activities					18
3.7 Total hours of individual study	33				
3.9 Total hours per semester	113				
3.10 Number of credits	3				

4. Prerequisites (where appropriate)

4.1 curriculum	Chemistry, Biology, Ecology
4.2 competences	Fundamental Notions

5. Conditions (where appropriate)

5.1. related to course	Students will not attend lectures, seminars / labs with open mobile phones. Also, telephone conversations during the course will not be tolerated, nor will the students leave the classroom in order to take personal telephone calls; Delay of students in the course and seminar / laboratory will not be tolerated as it proves to be disruptive to the educational process;
5.2. related to seminar/laboratory/ project	Rules of conduct of students in the soil science laboratory are those expressed in the course. The learning conditions are: active and interactive, practical-applicative, in a heuristic, problematic spirit;

6. Specific competences acquired	
Professional competences	<p>C1.1 Theoretical and practical description of forestry processes, characteristic of the hunting, salmonids and biodiversity</p> <p>C2.1 The technical basis for forest production process</p> <p>C3.1 Defining environmental risk situations, methods, techniques and procedures that can be used in ecological restoration of ecosystems</p> <p>C1.2 Explanation and argumentation different systems of sustainable forest management</p> <p>C2.2 Explanation and interpretation of phenomena and processes associated domain forestry production</p> <p>C4.2 Explain the techniques adopted to reach internal analysis of forest ecosystems.</p>
Transversal competences	<p>CT1. Developing and following a schedule and achieve their tasks with professionalism and rigor</p> <p>CT2. Applying effective communication techniques in specific activities of teamwork; playing a role within the team and the principles of division of labour</p> <p>CT3. Self-objective need for continuous training in order to adapt and meet the constant demands of economic development; use of information and communication techniques and an international language.</p>

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

7.1 General objective	Soil survey in terms of composition, morphology, genesis, evolution, its physical, chemical and biological production of its use, etc. Students will learn how the soil (natural or diverse body modified by man, with a particular composition and structure and presenting certain properties) can be analysed under different aspects, further studied and used in obtaining good yields and a proper forest resorts.
7.2 Specific objectives	<p>Field observations of geological phenomena, i.e. lithological composition, geometric relationships between the layers that make up a particular formation, their spatial extension, etc.,</p> <p>Organizing rational exploitation of forests, aiming to provide the best regeneration, avoid triggering processes of soil erosion prevention sloughing surfaces after afforestation, etc.;</p> <p>Determining solutions to eliminate excess moisture or deep erosion;</p> <p>Ground setting to design agro-forest-improvement works on various forestry or agricultural land.</p>

8. Content*/

8.1 Course	Methods of teaching	No. of hours/Remarks
Soil morphology and constituents. Soil profile and its horizons. The constituents of soil	Projectors, Interactive and classical	2
Soil colloids and their properties. Clays. Soil colloids and organic complexes	Projectors, Interactive and classical	2
Soil Genesis. Soil climate. Different types of soil development. The speed of evolution. Age ground. The process of soil formation. general scheme	Projectors, Interactive and classical	2
Soil texture. Types of textures. Methods for the determination. Particle size analysis. Soil structure - morphological classification and description. Findings of the structure. The formation of soil structure	Projectors, Interactive and classical	2
General elements of geology. Geological classification of rocks. Elements of geomorphology	Projectors, Interactive and classical	2
Geomorphological processes. Renewable energy geomorphological processes and outcomes geomorphological processes.	Projectors, Interactive and classical	4

The main geomorphological agents and their specific processes	Projectors, Interactive and classical	2
Torrent	Projectors, Interactive and classical	2
Soil Physics. Soil and air. Soil and water	Projectors, Interactive and classical	2
Soil water conditions. Indices soil hydro-physics	Projectors, Interactive and classical	2
Capillary potential. The soil temperature. Other physical properties. The physical - mechanical	Projectors, Interactive and classical	2
Soil chemistry: formation of the mineral part of the soil. Processes of weathering, alteration. The product of the processes of weathering and alteration	Projectors, Interactive and classical	2
Soil Biochemistry: formation of organic soil. Soil organic matter. The composition of humus	Projectors, Interactive and classical	4
Soil morphology and constituents. Soil profile and its horizons. The constituents of soil	Projectors, Interactive and classical	2

8.3. Laboratory	Methods of teaching	No. of hours/ Remarks
Sampling and preparation of soil samples	In the first hour lab will be a presentation by the teacher coordinator of the laboratory safety concepts related to specific soil science. Interactive	1
Determination of composition and particle size determination soil texture. Determination of soil structure	Interactive, systematic presentation, demonstration, exercise	1
Determination of density and bulk density of the soil. Porosity calculation. Determination of compactness, soil consistency, tackiness, plasticity and volume change	Interactive, systematic presentation, demonstration, exercise	2
Determination of moisture and soil hydro indices; Recognition types of humus and humus determination	Interactive, systematic presentation, demonstration, exercise	3
Determination of exchangeable cations and cation exchange; Determination of soil solution reaction	Interactive, systematic presentation, demonstration, exercise	1
Soil morphological characters	Interactive, systematic presentation, demonstration, exercise	2
Basics of Soil Taxonomy	Interactive, systematic presentation, demonstration, exercise	1
The structure of the Romanian system of soil taxonomy (SRTS) and nomenclature	Interactive, systematic presentation, demonstration, exercise	1
Soil Taxonomy higher level	Interactive, systematic presentation, demonstration, exercise	1
Identification key soil; changes SRTS-2003 against SRCS-1980	Interactive, systematic presentation, demonstration, exercise	1
Collaboration with the Forestry Direction Oradea, Sudrigiu, Săcuieni for a good development of the practical works in the field		

Bibliografie

1. Bodog Marinela – 2018 – *Pedologie*, Editura Universității din Oradea
2. Bodog Marinela – 2018 – *Aplicații la Pedologie*, Editura Universității din Oradea
3. Sabău N.C. – 2017 - *Geneza Degradarea și Poluarea Solului, Partea a II-a., Știința Solului – Taxonomia solurilor României*, Editura Universității din Oradea
4. Sabău N.C., - 2016 - *Geneza Degradarea și Poluarea Solului, Partea I., Știința Solului – Geneza și Proprietățile solului, Ediția a II-a*, Editura Universității din Oradea
5. Buzdugan I., Savin A., - 2008 – *Pedologie*, Curs on-line pentru studenți,
<http://www.silvic.usv.ro/cursuri.php>
6. Florea N., Munteanu I. – 2002 - *Sistemul român de taxonomie a solurilor (SRTS)*, Editura Estfalia, București
7. Păcurar I., 2006, *Pedologie și stațiuni forestiere*, Ed. Risoprint, Cluj-Napoca
8. Roșu C. - 2002 – *Pedologie generală și forestieră*, Editura Universității „Ștefan cel Mare” Suceava
9. Spârchez Gh., et. al – 2011 – *Pedologie*, Editura Lux Libris Brașov
10. Târziu D., Spârchez G., Dincă L. - 2004 - *Pedologie cu elemente de geologie*, Editura Silvodel, București
11. Târziu D., Spârchez Gh., Dincă L. – 2002 - *Solurile României*, Editura Pentru Viață, București

* 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

Course content is adapted to meet the requirements of the labor market, being accepted by epistemic communities (who study the land use of an area as it should take place in the sciences), social partners, professional associations and employers in the license Forestry. Course contents specialization is reflected in the curricula of Forestry and other universities in Romania who have accredited this specialization, knowing the basics is an urgent requirement employer in Forestry and Forest Engineering.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	General evaluation criteria (completeness and correctness of knowledge, logical coherence, fluency of expression, strength of argument). Discipline specific criteria Criteria regarding the attitudinal and motivational aspects of the students' activity.	Written exam	75%
10.6 Laboratory	In the last lab session students will present their work in laboratory.	Recognition practice of soil types	25%

10.8 Minimum standard of performance

Implementation and / or coordination of sustainable forestry management techniques and using specific means; foundation and reasoning methods, and procedures used. Development and implementation of technical projects and processes. Making diagnoses on the needs of ecological restoration, and technology standards available options regarding its application. Diagnosing the environmental and economic risks of forest ecosystems, defining their objectives regarding the protection and improvement in complex programs.

Date of completion

Signature of course holder

Signature of laboratory

01.10.2020

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Date of approval in the department

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Signature of the Head of Department

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