

Pedology (IIInd Year of study, IIIrd SEMESTER)
Credit value (ECTS): 4

Course category: Domain (Imposed)

Course holder: Conf. dr. Feodor FILIPOV

Discipline objectives (course and practical works)

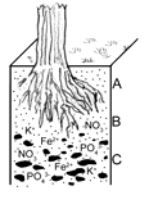
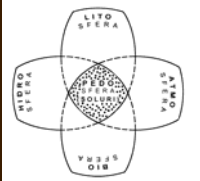
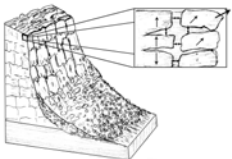
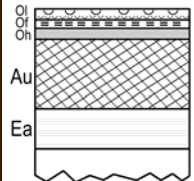
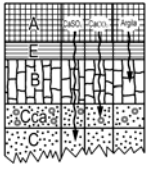
The aim of the course is to have students acquire knowledge on soil constituents, soil properties, soil horizon and soil. Students will also study the soil formation factors and soil formation processes..

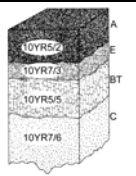
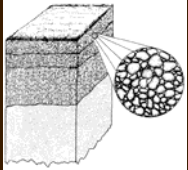
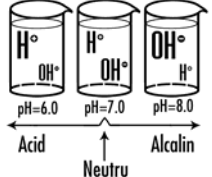
Practical works seek to familiarize students with minerls rocks classes and deposits resulted after weatering.

Morphological description of soil horizon and recognition processes which were formed rea the another main objectives.

In the laboratory there are representatve collections of rocks, minerals and soil macromonoliths taken to a depth of 2m

Contents (syllabus)

Course (chapters/subchapters)	
	<p>1. Pedology – Soil Science: This chapter includes research methods in soil conditions, soil significance, brief history of Pedology in world, in Romania and Pedology school of Iasi. The chapter concludes with soil survey applications in economy, especially in agricultural field.</p>
	<p>2. Factors of soil formation: Parent material; Climate, Topography; Biota, Time, People as soil Formers; Soil-forming factors.</p>
	<p>3. Mineral soil constituents: Rocks - source of mineral soil constituents; Physical weathering; Chemical weathering (oxydation-reduction, hydratation, hydrolisis); Alluvium, proluvium, deluvium, colluvium,</p>
	<p>4. Organic soil constituents: Soil organism (edaphon); The chemical composition of the organic matter and biochemical constituents; Humification; humic fractions; The indicators used in assessing the quality of humus; The importance of soil humus</p>
	<p>5. Soil formation and composition: Soil profile; Soil forming processes; Soil horizons.</p>

	<p>6. Soil morphology: Soil structure; Soil colour; Special soil formation.</p>
	<p>7. Physical properties of the soil; Soil texture; Density and Bulk density; Soil porosity; Soil sticknes, plasticity and consistency</p>
	<p>8. Chemical properties of the soil; Clay and humus colloids; soil solution; Cation exchange capacity; Anion-exchange capacity; Soil acidity and alcalinty; Soil reaction; soil buffering capacity</p>

Practical works	
Presentation Laboratory of Soil Science; labor protection rules; Laboratory equipment a; fair practices in Pedology laboratory.	
Recognition and description of minerals	
Recognition and characterization of igneous metamorphic and sedimentary rocks	
Recognition deposits resulting after physical and chemical weathering	
Recognition of pedogenetical horizons and processes which have been formed	

Bibliography

1. Blaga Gh. Filipov F., Rusu I., Udrescu S., Vasile D. - Pedologie. Ed. ACADEMIC PRESS, Cluj – Napoca, 2005.
2. Filipov F., Lupascu Ghe. -Pedologie. Alcatuirea geneza si clasificarea solurilor. Editura. Terra nostra, Iasi, 2003
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Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Oral examination	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	40%

Contact

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Pedology (IIInd Year of study, IVrd SEMESTER)

Credit value (ECTS) 4

Course category

Domain (Imposed)

Course holder: Conf. dr. Feodor FILIPOV

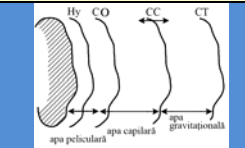
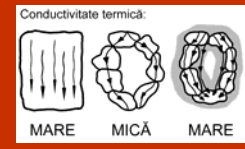
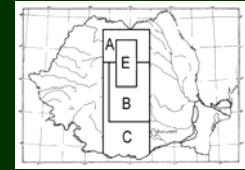
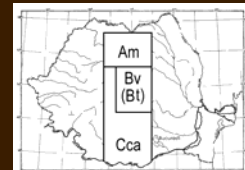
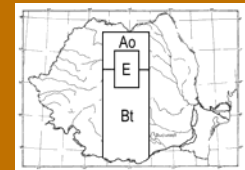
Discipline objectives (course and practical works)

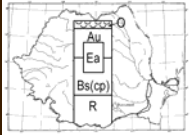
The aim of the course is to have students acquire knowledge on taxonomic descriptions, morphological characters and physical chemical of the main soil horizons that have practical implications. Students will also study the main taxonomic units of Soil Taxonomy.

The main objective of the course is that graduates know pedologie can make a short description of major taxonomic units: summary description of parent material: environment; profile development; regional distribution; management and use.

Practical works seek to familiarize students with technical work in pedology laboratories and knowledge of some methods of chemical and physical analyses. Collection of soil (84 monoliths) will allow students to recognize and diagnose the representative soil units.

Contents (syllabus)

Curs (Capitole/subcapitole)	
 <p>The diagram illustrates water flow in soil. It shows a vertical profile with four horizons labeled Hy, CO, CC, and CT. Arrows indicate the movement of water: 'apa pehiculară' (capillary water) moving upwards and 'apa gravitațională' (gravitational water) moving downwards.</p>	I. Soil air and water: Characteristics of water: Soil water amount; Soil water constant; Suction; Water flow into and through soil; Flow in stratified soil; Vapor flow; Moisture regime; Soil air composition; Air movement.
 <p>The diagram shows heat conduction through soil layers. It is labeled 'Conductivitate termică' and shows three layers: 'MARE' (sea), 'MICĂ' (small), and 'MARE' (sea). Arrows indicate the direction of heat flow.</p>	II. Soil climate: Sunshine-irradiation and heating; Movement of heat through soil; Controlling ground-level climates.
 <p>The map shows the geographical distribution of soil classification zones A, B, and C across Romania.</p>	III. Soil Taxonomy: Characteristics of soil classifications; Genetic and morphological soil classifications; Taxonomia solurilor din România; Cadrul natural de formare a solurilor din România
 <p>The map shows the geographical distribution of soil classification zones Am, Bv (Bt), and Cca across Romania.</p>	IV. Cernisols class (CER): Kastanozems (KZ); Chernozems (CZ); Phaeozems (FZ); Rendzic Soil (Rendzina RZ).
 <p>The map shows the geographical distribution of soil classification zones Ap, E, and Bt across Romania.</p>	V. Luvisols class: Preluvosols or Haplic Luvisols; Luvosoluri or Luvisols; Planosols; Alosols.

	<p>VI. Spodosols class: Prepodzols or Entic Podzols; Podzols;</p>									
<table border="1"> <tr><td>Au</td><td>Au an</td><td>Ay(z)</td></tr> <tr><td>AR,AC</td><td>A Ran</td><td>ACy(z)</td></tr> <tr><td>RsauC</td><td>R</td><td>C</td></tr> </table>	Au	Au an	Ay(z)	AR,AC	A Ran	ACy(z)	RsauC	R	C	<p>VII. Classes: Hidrisoluri (Stagnosol and Gleiosols); Andisols (Andosols) Histisoluri (Histosol).</p>
Au	Au an	Ay(z)								
AR,AC	A Ran	ACy(z)								
RsauC	R	C								
<table border="1"> <tr><td>Ao sa</td><td>A</td><td>T1</td></tr> <tr><td>Bsa(Btna)</td><td>AG(W)</td><td>T2</td></tr> <tr><td>C</td><td>Gr(BW)</td><td>T3</td></tr> </table>	Ao sa	A	T1	Bsa(Btna)	AG(W)	T2	C	Gr(BW)	T3	<p>VIII. Classes: Hidrisols (Stagnosoluri și Gleiosoluri); Salsodisoluri (Solonceacuri și Solonețuri); Histisols (Histosol).</p>
Ao sa	A	T1								
Bsa(Btna)	AG(W)	T2								
C	Gr(BW)	T3								
<table border="1"> <tr><td>A</td><td>A</td><td>(A+B+C) sau MA₁</td></tr> <tr><td>C</td><td>Bv</td><td>C</td></tr> <tr><td></td><td>CsauR</td><td>sau MA₂</td></tr> </table>	A	A	(A+B+C) sau MA ₁	C	Bv	C		CsauR	sau MA ₂	<p>IX. Classes: Protisols (Regosols, Litosols, Aluvioasoluri or Fluvisols, Psamosols or Arenosols) Cambisols (Eutricambosols and Districambosols) Antrisoluri (Antrosols and Tehnosols)</p>
A	A	(A+B+C) sau MA ₁								
C	Bv	C								
	CsauR	sau MA ₂								

Practical works
Establishment of representative location for soil profile
Soil sampling
Approximate setting of soil texture in the field
Approximate setting of soil moisture
Determination of new soil formation and artefacts
The establishment of soil structure
Determination of soil pH, Ca CO ₃ content, soluble salts content
Morphological characterization and soil diagnosis

Bibliography

1. Blaga Gh. Filipov F., Rusu I., Udrescu S., Vasile D. - Pedologie. Ed. ACADEMIC PRESS, Cluj – Napoca, 2005.
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Contact

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