

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	Environmental Engineering
1.5 Cycle of study	BACHELOR
1.6 Study programme/Qualification	Engineering of biotechnical and ecological systems / Engineer

2. Information on the discipline

2.1 Name of discipline	Meteorology and Climatology I						
2.2 Course holder	Lecturer Pereş Ana Cornelia						
2.3 Seminar/Laboratory/Project holder	Lecturer Pereş Ana Cornelia						
2.4 Year of study	I	2.5 Semester	I	2.6 Type of evaluation	Ex	2.7 Regime of discipline	I

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

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

3.1 Number of hours per week	3	out of which: 3.2 course	2	out of which 3.3 seminar/laboratory/project	1
3.4 Total hours in the curriculum	42	out of which: 3.5 course	28	out of which 3.6 seminar/laboratory/project	14
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					27
Additional documentation in the library/ on specialised electronic platforms and in the field					18
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					5
Tutorship					5
Examinations					2
Other activities.....					1
3.7 Total hours of individual study	58				
3.9 Total hours per semester	100				
3.10 Number of credits	4				

4. Prerequisites (where appropriate)

4.1 curriculum	Knowledge of physical and physical geography in high school textbooks
4.2 competences	Fundamentals of mathematical computing and interpretation of various graphic materials (maps, sketches, graphs).

5. Conditions (where appropriate)

5.1. related to course	Computer room (laptop) and videoprojector
5.2. related to seminar/laboratory/ project	Laboratory with specialized equipment

6. Specific competences acquired	
Professional competences	<p>C1.4 Qualitative and quantitative analysis of natural phenomena and technological processes to prevent and mitigate environmental impacts</p> <p>C2.4 Qualitative and quantitative assessment of natural phenomena and anthropogenic activities on the quality of environmental factors</p> <p>C3.1 Identification and use of instrumental instruments and instruments necessary to monitor environmental factors</p>
Transversal competences	<p>CT3. Effective 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>

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

7.1 General objective	Understanding the role of the atmosphere in the environmental system as well as the relationship between the air covering and the other components of the geographical environment, including man and his activity.
7.2 Specific objectives	<p>In the course, they consist in defining the main meteorological and climatic elements and in understanding the interconditioning between the main processes and atmospheric phenomena. Also, it is intended to know the problems related to the current trends observed in the evolution of the climate.</p> <p>In practical work, the emphasis is on knowing the quantitative and qualitative parameters that define the main meteorological and climatic elements.</p>

8. Content*/

8.1 Course	Methods of teaching	No. of hours/Remarks
1. Introduction to meteorology and climatology. Terrestrial atmosphere.	Exposure, conversation	4
2. Radiation streams from the atmosphere	Exposure, conversation lecture, video projector images	2
3. Soil temperature. The factors that influence the thermal regime of the soil. Soil temperature variation.	Exposure, conversation lecture, video projector images	2
4. Air temperature. Heating and cooling of the air. Change of air temperature.	Exposure, conversation lecture, video projector images	2
5. Atmospheric humidity. Spatial distribution of air humidity. Time variation of air humidity.	Exposure, conversation lecture, video projector images	2
6. Condensation and sublimation of water vapor on land surface.	Exposure, conversation lecture, video projector images	2
7. Condensation and sublimation of water vapor in lower atmosphere atmospheres.	Exposure, conversation lecture, video projector images	2
8. Condensation and sublimation of water vapor in the free atmosphere. Clouds (Cloud genesis, morphological classification of clouds, nebulosity).	Exposure, conversation lecture, video projector images	4
9. Atmospheric precipitation: definition, genesis, precipitation forms.	Exposure, conversation lecture, video projector images	4
10. Atmospheric pressure. General notions. Variation of atmospheric pressure.	Exposure, conversation lecture, video projector images	2
11. Wind - definition, genesis. Forces acting on the wind. The elements of the wind. Wind classification.	Exposure, conversation lecture, video projector images	2
Bibliography		
1. Barry R., G., Chorley R., J., 1998, <i>Atmosphere, Weather and Climate</i> , Seventh Edition, Routledge, London and New York.		

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3. Bogdan Octavia, 2009, *Bazele teoretice ale meteorologiei*, Editura Universității „L. Blaga”, Sibiu.
4. Ciulache S., Ionac Nicoleta, 2003, *Dicționar de meteorologie și climatologie*, Editura Ars Docendi, București.
5. Domuța C., Brejea R., 2010, *Monitoringul mediului*, Editura Universității din Oradea.
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8. Moldovan F., 2003, *Fenomene climatice de risc*, Editura Echinox, Cluj-Napoca.
9. Moldovan F., 2012, *Elemente de climatologie și hidrologie, Partea I, Meteorologie-Climatologie*, Forma de învățământ ID, Editura Casa Cărții de Știință, Cluj-Napoca.
10. Moza (Pereș) Ana Cornelia, 2009, *Clima și poluarea aerului în bazinul hidrografic Crișul Repede*, Editura Universității din Oradea.
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12. Pop Gh., 1988, *Introducere în meteorologie și climatologie*, Editura Științifică și Enciclopedică, București.
13. Povară Rodica, 2004, *Climatologie generală*, Editura Fundației România de Mâine, București.
14. Sorocovschi V., 2009, *Meteorologie și climatologie*, Editura Casa Cărții de Știință, Cluj-Napoca.
15. Strahler A. N., 1973, *Geografia fizică*, Editura Științifică, București.
16. Zăpârțan M., Mintăș O., Moza A., Agud E., 2009, *Biometeorologie și bioclimatologie*, Ed. EIKON, Cluj-Napoca, nr. pag. 314.
17. **, 1966, *Atlasul climatic al RSR*, C.S.A., Institutul Meteorologic, București.
18. **, 1972-1979, *Atlas. R.S.R.*, Editura Academiei R.S.R., București.
19. **, 2008, *Clima României*, ANM, Editura Academiei Române, București.
20. **, *Rețeaua Internet: www.wmo.ch, www.wetterzentrale.de, www.google.com*.

8.2 Seminar	Methods of teaching	No. of hours/ Remarks
8.3 Laboratory		
1. Organization of the meteorological observation network.	Exposure, Discussion	1
2. Meteorological station, apparatus and instruments. Radar presentation. Composition of meteorological forecasts. Visit to the Oradea weather station.	Explanation, demonstration. Tools and appliances	1
3. Measure the sunshine duration.	Explanation, demonstration. Tools and appliances	1
4. Measurement of soil temperature.	Explanation, demonstration. Tools and appliances	1
5. Air temperature measurement.	Explanation, demonstration. Tools and appliances	1
6. Measure the humidity of the air.	Explanation, demonstration. Tools and appliances	1
7. Evaporation and evapotranspiration.	Explanation, demonstration. Tools and appliances	1
8. Products of condensation and sublimation of water vapor on land surface and near land surface.	Explanation, demonstration.	1
9. Clouds and nebulosity.	Explanation, demonstration. The International Atlas of	1

	Clouds	
10. Measurement of atmospheric precipitation.	Explanation, demonstration. Tools and appliances	1
11. Measurement of atmospheric pressure.	Explanation, demonstration. Tools and appliances	1
12. Wind observations.	Explanation, demonstration. Tools and appliances	1
13. Visit to the meteorological station Oradea for the determination of the meteorological parameters.	Explanation, demonstration. Tools and appliances	1
14. Colloquium	Conversation. Description of specialized equipment	1
8.4 Project		
Bibliography		
<ol style="list-style-type: none"> 1. Belozero V., Fărcaș I., 1971, <i>Îndrumător metodologic pentru lucrările practice de Meteorologie-Climatologie</i>, Universitatea „Babeș-Bolyai”, Cluj. 2. Fărcaș I., 1987, 1988, <i>Măsurători și calcule de Meteorologie, Partea I și Partea II</i>, Universitatea din Cluj. 3. Gaceu O., 2001, <i>Elemente de meteorologie practică</i>, Editura Universității din Oradea. 4. Moza (Pereș) Ana Cornelia, 2009, <i>Clima și poluarea aerului în bazinul hidrografic Crișul Repede</i>, Editura Universității din Oradea. 5. Oldani J., 2000, <i>Meteorologie</i>, Editions de Vecchi.S.A., Paris. 6. Pap G., Bozac, R., 1982, <i>Curs de fizică și agrometeorologie</i>, în Atelierele de material didactic al Institutului Agronomic din Cluj – Napoca; 7. Pereș Ana Cornelia, 2012, <i>Meteorologie și climatologie</i>, Editura Universității din Oradea. 8. Pereș Ana Cornelia, 2015, <i>Meteorologie și climatologie: lucrări practice</i>, Editura Universității din Oradea. 9. Salerno R., 2005, <i>Meteorologia</i>, Ugo Meteo Mursia Editore S.p.A. Milano. 10. Zăpârțan M., Buzașiu O., 2003, <i>Lucrări practice de meteorologie agricolă și silvică</i>, Editura Academic Pres., UAMV Cluj- Napoca; 11. * * *, 1966, <i>Clima R.S.R., Volumul I și II</i>, C.S.A., Institutul Meteorologic, București. 12. * * *, 1972-1979, <i>Atlas. R.S.R.</i>, Editura Academiei R.S.R., București. 13. * * *, 1982, <i>Atlasul Internațional de Nori</i>, IMH, București. 14. * * *, 2008, <i>Clima României</i>, ANM, Editura Academiei Române, București. 15. * * *, <i>Rețeaua Internet: www.wmo.ch, www.wetterzentrale.de</i>. 		

* 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

<ul style="list-style-type: none"> • The content of the discipline is designed to deal with many problems specific to practical work so that graduates can fit into different fields of activity related to the atmospheric environment. • Upon completion of the studies, the graduates will be able to work in: education, research, units of the National Meteorological Administration and the National Administration "Romanian Waters", as workers in the county environmental protection agencies in the area of planning and systematizing the territory as members in committees for emergency situations, as workers in travel agencies, etc.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	The degree of acquisition of taught matter	Oral exam at the end of the semester	75%
10.5 Seminar	-	-	-
10.6 Laboratory	Understand the operation of weather devices. Drawing and interpreting graphic materials (maps, charts).	Colloquium in the last hour of practical work	25%
10.7 Project	-	-	-
10.8 Minimum standard of performance			
<ul style="list-style-type: none"> • promoting the colloquium from practical works, which will allow the presentation on the theoretical examination; • passing the theoretical exam with grade 5 (five). 			

Date of completion

Signature of course holder**

Signature of seminar
laboratory/project holder **

mai 2021

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Date of approval in the department

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Signature of the Head of Department
Assoc. prof. LASLO VASILEDean signature
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