Anexa 1 a planului de învățământ - rezultatele învățării
Programul de studii: **Enviromental Physics and Eco-Friendly Materials 2026/2027**

Rezultate ale învăţării	Cunoștințe	Aptitudini	Responsabilitate şi autonomie	Discipline
R1	The student/graduate has in-depth knowledge of the principles of atmospheric physics, its structure and dynamics, as well as the exchanges of energy and matter in the climate system.	The student/graduate can analyze atmospheric processes using theoretical and instrumental methods, interpret weather maps and satellite data, and use climate and meteorological models to describe and forecast phenomena.	The student/graduate has the ability to plan and implement complex projects related to atmospheric phenomena, including research, forecasting, weather warning and climate policies, integrating knowledge in educational and professional contexts. He also disseminates the results in the scientific community.	DOB.101.EPEM Atmospheric Physics , DOB.107.EPEM The climate system, DOP.109.2.EPEM Modeling environmental and astrophysical processes , DOB.201.EPEM Meteorology / Meteorologie, DOP.204.1.EPEM Earth radiation budget / Bugetul radiativ al planetei
R2	The student/graduate knows the natural and anthropogenic factors that determine climate variability and change, methods for monitoring and modeling environmental parameters, as well as their effects on the environment and society.	The student/graduate can critically analyze climate data to interpret the behavior of environmental systems, evaluating and interpreting parameters based on experimental and modeled data, estimating possible evolutions of the climate system.	The student/graduate has the ability to plan and implement physical investigations on the environment, to interpret and use climate information in the decision-making process and to contribute to the development of solutions for adapting and mitigating the impact of climate change, effectively communicating the results within the scientific community and collaborating interdisciplinary.	DOB.107.EPEM The climate system, DOP.105.2.EPEM Renewable energy sources, DOP.109.2.EPEM Modeling environmental and astrophysical processes , DOP.204.1.EPEM Earth radiation budget / Bugetul radiativ al planetei, DOP.209.1.EPEM Extreme phenomena. Meteorological and climatic risk

R3	The student/graduate knows the theoretical and practical concepts regarding the properties and functionalities of advanced materials (polymer materials, nanomaterials, hybrid composites or porous materials) for their application in environmental monitoring and remediation processes.	The student/graduate can identify and analyze the characteristics of materials in relation to environmental applications, use characterization techniques and integrate these materials into sustainable technological solutions, conducting scientific research in the field of ecological materials with a focus on sustainability and reduced environmental impact.	The student/graduate has the ability to plan and implement complex projects in the field of atmospheric and climatic phenomena, as well as sustainable materials designed to reduce environmental impact, effectively disseminating the results in the scientific community.	DOP.103.2.EPEM Simulation and modelling of ecological polymeric materials, DOP.104.1.EPEM Ecological (friendly enviro) polymer materials, DOP.104.2.EPEM Pollution with plastic materials and waste management, DOP.105.1.EPEM Polymer degradation methods, DOB.202.EPEM Advanced materials for environmental applications / Materiale avansate pentru aplicații de mediu
R4	The student/graduate knows the theoretical models, numerical and statistical methods applied in modeling physico-chemical processes in the field of environmental physics, ecological materials and renewable energy.	The student/graduate can develop and use computational models and statistical tools for the simulation, analysis and interpretation of complex phenomena in environmental physics, the field of ecological materials and environmental technologies. He also uses specialized numerical models for meteorological predictions and applies statistical analysis	The student/graduate has the ability to critically analyze specialized information and apply the knowledge acquired to develop and validate computational models, formulating rigorous scientific conclusions and substantiating decisions by interpreting data from processes specific to environmental physics.	DOB.101.EPEM Atmospheric Physics , DOP.103.2.EPEM Simulation and modelling of ecological polymeric materials, DOP.109.1.EPEM Radionuclides, environmental radioactivity and radioactive waste management, DOP.109.2.EPEM Modeling environmental and astrophysical processes , DOP.110.1.EPEM Statistical methods in Earth and Atmosphere Physics

		techniques.		
R5	The student/graduate knows the physical processes that govern the internal structure of the Earth, the propagation of seismic waves, the analysis of gravitational and geomagnetic fields and their interaction with the environment.	The student/graduate can analyze seismic, magnetic and gravimetric data, using geophysical methods and theoretical models to characterize the structure and internal evolution of the planet. The student/graduate can apply scientific methods and critically interpret experimental data obtained in the laboratory.	The student/graduate has the ability to plan and implement complex projects that integrate geophysical results in applied contexts, such as natural hazards or environmental monitoring, effectively communicating results within research teams and to decision-makers.	DOB.108.EPEM Dynamics of the Earth`s interior and Seismology, DOP.203.1.EPEM Environmental magnetism / Magnetism cu aplicații în fizica mediului, DOP.203.2.EPEM Earth's geomagnetic and gravity fields / Câmpurile geomagnetic și gravitațional ale Pământului
R6	The student/graduate understands the mechanisms of pollutant transport and transformation, the sources and impact of plastic and radioactive materials, the functioning of green energy systems, as well as the methodological framework for environmental and energy audits.	The student/graduate can implement methods for analyzing the impact of pollutants and the life cycle of materials, understand the transport and transformation processes of substances in the environment, and systematically use audit techniques and strategies for sustainable resource and waste management.	The student/graduate has the ability to choose optimal solutions that offer the greatest benefit in a given context, developing and implementing strategies to reduce environmental impact, reporting audit results and substantiating decisions regarding energy and ecological sustainability.	DOP.103.1.EPEM Dispersion of Pollutants, DOP.104.2.EPEM Pollution with plastic materials and waste management, DOP.109.1.EPEM Radionuclides, environmental radioactivity and radioactive waste management, DOB.202.EPEM Advanced materials for environmental applications / Materiale avansate pentru aplicații de mediu, DOP.204.2.EPEM Basics of energy audit/basics of environmental audit. Architectures and ecological houses

R7	The student/graduate knows the principles of operation and use of measurement, analysis and testing equipment used in environmental physics and the characterization of ecological materials, including tools specific to environmental analysis.	The student/graduate can autonomously select and operate equipment and instruments appropriate to the investigated context, depending on the nature of the parameters and the level of precision required. Collects experimental data, operates equipment specific to scientific research and laboratory activities and performs laboratory tests.	The student/graduate can choose the optimal working solution by critically comparing available alternatives, evaluating the technological and ecological impact in the short, medium and long term, to support sustainable and scientifically based decisions.	DOP.103.1.EPEM Dispersion of Pollutants, DOP.104.1.EPEM Ecological (friendly enviro) polymer materials, DOP.105.1.EPEM Polymer degradation methods, DOP.105.2.EPEM Renewable energy sources, DOB.202.EPEM Advanced materials for environmental applications / Materiale avansate pentru aplicații de mediu
R8	The student/graduate knows the computer tools and specialized programs used in data analysis and computational simulation.	The student/graduate can use advanced modeling and simulation software to solve specific problems in environmental physics and the field of ecological materials.	The student/graduate demonstrates autonomy in the exploitation and development of software solutions, assuming responsibility for compliance with licensing models, code quality standards, and collaborative practices specific to software solution development and operation communities.	DOB.107.EPEM The climate system, DOP.103.2.EPEM Simulation and modelling of ecological polymeric materials, DOP.105.2.EPEM Renewable energy sources, DOP.109.1.EPEM Radionuclides, environmental radioactivity and radioactive waste management, DOP.109.2.EPEM Modeling environmental and astrophysical processes
R9	The student/graduate knows the terminology specific to the field of environmental physics and ecological materials,	The student/graduate can effectively communicate research results and proposed solutions, both in writing and orally, to diverse	The student/graduate has the ability to interact with key actors in the field of environmental physics and ecological materials, at the	DOP.103.2.EPEM Simulation and modelling of ecological polymeric materials, DOP.104.1.EPEM Ecological (friendly enviro) polymer

	for the purpose of effective communication in professional environments and towards society.	audiences, including colleagues, decision-makers, and the general public. Is able to synthesize information in a coherent and accessible manner.	national and global level, disseminating results in the scientific community and publishing academic papers.	materials, DOP.105.2.EPEM Renewable energy sources, DOP.109.2.EPEM Modeling environmental and astrophysical processes , DOB.203.EPEM Research activity / Practica de cercetare
R10	The student/graduate knows the ethical norms and principles that regulate scientific research in the field and acquires a culture of responsibility in intellectual work.	The student/graduate assimilates both the explicit norms (texts with normative value) and the implicit ones (customs and practices) that regulate academic and research conduct.	The student/graduate demonstrates solidarity, reactivity and support in strengthening academic integrity, demonstrating responsible and ethical behavior in scientific activities.	DOB.102.EPEM Ethics and academic integrity, DOB.207.EPEM Elaboration of the dissertation thesis (4 weeks) / Finalizarea lucrării de disertație
R11	The student/graduate knows the different contexts and opportunities for applying ideas in personal, social and professional activities, as well as how they can arise.	The student/graduate demonstrates negotiation skills, empathy, assertive communication, leadership, teamwork, conflict and team management, as well as public speaking skills.	The student/graduate demonstrates initiative and self-control, has the capacity for anticipation and prospective evaluation, courage and perseverance in achieving personal and professional goals.	DFA.106.EPEM Volunteering, DFA.111.EPEM Volunteering, DFA.205.EPEM Volunteering, DFA.211.EPEM Volunteering
R12	The student/graduate uses fundamental and specialized notions to explain and interpret various concepts, situations, processes and projects.	The student/graduate applies fundamental and specialized knowledge and concepts to explain, present, identify and interpret processes in environmental physics and ecological materials, in	The student/graduate solves specific requirements by identifying regularities, notions and concepts specific to the field, demonstrating analysis and synthesis skills.	DOB.107.EPEM The climate system, DOB.108.EPEM Dynamics of the Earth`s interior and Seismology, DOP.110.1.EPEM Statistical methods in Earth and Atmosphere Physics,

		concrete situations or within projects and programs specific to the field.		DOP.110.2.EPEM Time series analysis , DOB.203.EPEM Research activity / Practica de cercetare

Anexa 2 a planului de învățământ - matricea rezultatelor învățării

Disciplina \ Rezultat	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	Nr rez
Atmospheric Physics	X			X									**2**
Ethics and academic integrity										X			**1**
Dispersion of Pollutants						X	X						**2**
Simulation and modelling of ecological polymeric materials			X	X				X	X				**4**
Ecological (friendly enviro) polymer materials			X				X		X				**3**
Pollution with plastic materials and waste management			X			X							**2**
Polymer degradation methods			X				X						**2**
Renewable energy sources		X					X	X	X				**4**
Volunteering											X		**1**
The climate system	X	X						X				X	**4**
Dynamics of the Earth`s interior and Seismology					X							X	**2**
Radionuclides, environmental radioactivity and radioactive waste management				X		X		X					**3**
Modeling environmental and astrophysical processes	X	X		X				X	X				**5**
Statistical methods in Earth and Atmosphere Physics				X								X	**2**

Time series analysis				X				X				X	**3**
Volunteering											X		**1**
Meteorology / Meteorologie	X							X					**2**
Advanced materials for environmental applications / Materiale avansate pentru aplicații de mediu			X			X	X						**3**
Environmental magnetism / Magnetism cu aplicații în fizica mediului					X		X					X	**3**
Earth's geomagnetic and gravity fields / Câmpurile geomagnetic și gravitațional ale Pământului					X								**1**
Earth radiation budget / Bugetul radiativ al planetei	X	X											**2**
Basics of energy audit/basics of environmental audit. Architectures and ecological houses						X			X				**2**
Volunteering											X		**1**
Physico-chemistry of the environment		X	X	X			X						**4**
Elaboration of the dissertation thesis (4 weeks) / Finalizarea lucrării de disertație									X	X			**2**
Research activity / Practica de cercetare				X			X		X			X	**4**
Extreme phenomena. Meteorological and climatic risk	X	X											**2**
Physical processes in clouds	X					X							**2**
Simulation methods, modelling for renewable and alternative energy sources				X									**1**
Volunteering											X		**1**
Total	**7**	**6**	**6**	**9**	**3**	**6**	**8**	**7**	**7**	**2**	**4**	**6**	