Appendix No. 1.5 to the Resolution No. 61/2025
of the Rector of the University of Rzeszów

SYLLABUS

REGARDING THE QUALIFICATION CYCLE FROM *2026/2027* **TO** *2029/2030*
ACADEMIC YEAR *2026/2027*

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	**Physics of the Environment**
Course/Module code *	
Faculty (name of the unit offering the field of study)	Faculty of Technology and Life Sciences
Name of the unit running the course	Institute of Agricultural Sciences, Environmental Protection, and Management
Field of study	Agriculture
Qualification level	First-cycle studies
Profile	general academic
Study mode	full-time
Year and semester of studies	I year, 1 semester
Course type	basic
Language of instruction	English
Coordinator	dr hab. inż. Piotr Kuźniar, prof. UR
Course instructor	dr hab. inż. Piotr Kuźniar, prof. UR

* - as agreed at the faculty

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Laboratories	Seminars	Practical classes	Internships	others	**ECTS credits**
1	15		20					4

1.2. Course delivery methods
x conducted in a traditional way
- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)
Lectures: pass with a grade
Laboratories: pass with a grade

2. PREREQUISITES

High school level physics and mathematics.

3. Objectives, Learning Outcomes, Course Content, and Instructional Methods

3.1. Course/Module objectives

O1	Familiarizing students with physical concepts applicable to the agricultural environment.
O2	Developing skills in measuring, describing, and performing calculations related to simple physical processes occurring in the agricultural environment.

3.2. Course/Module Learning Outcomes

Learning Outcome	The description of the learning outcome defined for the course/module	Relation to the degree programme outcomes
LO_01	The graduate knows and understands the essential physical quantities, processes, and phenomena relevant to agricultural sciences.	K_W01, K_W04
LO_02	Can to plan and conduct laboratory exercises in physics, perform calculations, interpret the results obtained, and draw conclusions.	K_U02, K_U06
LO_03	Can to plan and organize individual and team work, as well as pursue personal development.	K_U10
LO_04	Is ready to take action to improve their skills and to utilize the opinions and advice of experts.	K_K02

3.3. Course content

A. Lectures

Content outline
Motion – its significance in nature. Electric and magnetic fields. Electromagnetic waves. Electromagnetic spectrum. Solar radiation. Greenhouse effect. Thermodynamics. Temperature scales. Phase transitions. Thermodynamic characteristics of selected phenomena in the agricultural environment. Elements of elasticity theory and rheology.

B. Laboratories

Content outline
Measurement and calculation of selected physical quantities. Measurement of rolling and sliding friction coefficients. Measurement of the heat of fusion of ice. Measurement of the specific heat capacity of a liquid using the cooling method. Measurement of relative and absolute air humidity. Evaluation of selected mechanical properties of agricultural raw materials and products. Determination of the light absorption curve and absorption coefficient of glass plates. Measurement of carbon dioxide concentration in the air.

3.4. Methods of Instruction

Lecture: lecture supported by a multimedia presentation
Laboratories: conducting experiments.

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

Learning outcome	Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes)	Learning format (lectures, classes...)
LO_01	Report and discussion, test	Lectures, Laboratories
LO_02	Observation of the experiment, report and discussion, test	Laboratories
LO_03	Observation of the experiment, report and discussion	Laboratories
LO_04	Observation of the experiment, report and discussion	Laboratories

4.2 Course assessment criteria

Laboratories: a graded assessment based on partial grades from tests and laboratory reports. Lectures: attendance at lectures, active participation in discussions, test. Passing the course is contingent upon achieving all the required learning outcomes. The number of points obtained determines the passing grade for the tests. Final grade according to the scale: up to 50% – fail, >50% – satisfactory, >60% – satisfactory plus, >70% – good, >80% – good plus, >90% – very good.

5. Total student workload needed to achieve the intended learning outcomes – number of hours and ECTS credits

Activity	Number of hours
Course hours	35
Other contact hours involving the teacher (consultation hours, examinations)	consultation - 5
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	preparation for classes - 20 preparation reports - 20 preparation for tests - 20
Total number of hours	100
Total number of ECTS credits	4

* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

Number of hours	
Internship regulations and procedures	

7. Instructional materials

Compulsory literature: materials provided by the teacher and online resources on the topics covered
Complementary literature: online resources on the topics covered

Approved by the Head of the Department or an authorised person