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 2027/2028
ACADEMIC YEAR: 2027/2028

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	**Energy Crops**
Course/Module code *	
Faculty (name of the unit offering the field of study)	Faculty of Technology and Natural Sciences
Name of the unit running the course	Institute of Agricultural Sciences, Environmental Protection, and Management; Department of Crop Production
Field of study	Agriculture
Qualification level	Second-cycle studies
Profile	General academic
Study mode	Full-time
Year and semester of studies	Year 1 Semester 2
Course type	Speciality subject
Language of instruction	English
Coordinator	prof. dr hab. inż. Ewa Szpunar-Krok
Course instructor	Lectures: – prof. dr hab. inż. Ewa Szpunar-Krok Laboratory classes: – dr hab. Marta Jańczak-Pieniążek, prof. UR (laboratory classes) – dr Marzena Mazurek (laboratory classes, field classes)

* - as agreed at the faculty

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Laboratories	Seminars	Practical classes	Internships	Field classes	**ECTS credits**
1	14		25				5	3

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)
Pass with a grade

2. PREREQUISITES

Knowledge of the basic methods and techniques of soil and crop management, as well as detailed crop production.

3. OBJECTIVES, LEARNING OUTCOMES, COURSE CONTENT, AND INSTRUCTIONAL METHODS

3.1. Course/Module objectives

O1	Presenting the economic importance and potential uses of energy crops.
O2	Familiarising students with the habitat requirements and cultivation of energy crops.
O3	Providing students with basic knowledge of energy crop production technologies.
O4	Familiarising students with plant species that can be used for energy production.

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	is able to list energy crops and has knowledge of their growth cycles and uses.	K_W04
LO_02	has knowledge of the habitat requirements of energy crops.	K_W04
LO_03	has knowledge of the principles of agronomic practices and harvesting techniques for crops intended for energy production.	K_W04
LO_04	is able to select energy crop species appropriate for different habitat conditions.	K_U02, K_U03
LO_05	is able to prepare projects for: (1) managing a plantation of a selected perennial energy crop species, and (2) preparing a biomass balance.	K_U02, K_U03
LO_06	is prepared to take responsibility for protecting the natural environment.	K_K03

3.3. Course content

A. Lectures

Content outline
Habitat, social, and economic conditions affecting the cultivation of energy crops in Poland. The production potential of plant-based energy feedstocks in Poland.
Crops with the highest capacity for converting solar energy and storing it in the form of biomass.
Agronomic practices for perennial energy crops: short-rotation woody crops, herbaceous crops, grass crops.
Annual crops cultivated for energy purposes.

B. Laboratories, field classes

Content outline
Characteristics of annual crops (cereals, root crops, and oilseed crops) and their potential uses in the energy industry.
Biological and morphological characteristics of perennial energy crops used in biofuel production.
Harvesting, processing, and upgrading of plant-based energy feedstocks.
Calculation of the costs of establishing, managing, and removing energy crop plantations, and assessment of the profitability of their cultivation (project).
Planning the use of agricultural land for energy crop production. Preparation of a biomass balance for energy crop production (project).
Familiarising students with a collection of energy crops and the practical use of biomass for energy production.

3.4. Methods of Instruction

Lecture: a lecture supported by a multimedia presentation
Laboratories: project, group work, discussion
Field classes: observation and discussion.

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	test, field class report	lectures, field classes
LO-02	test, field class report	lectures, field classes
LO-03	test	lectures, classes
LO-04	test	classes
LO-05	project	classes
LO-06	continuous observation	classes

4.2 Course assessment criteria

A condition for passing the course is the achievement of all intended learning outcomes.
Lectures: credit based on a test.
Laboratories: graded credit. The final grade is based on the grades obtained in individual tests and projects, participation in discussions, and observation of students' activity during classes.
Field classes: submission of a report.
A passing grade for the examination and tests is determined by the number of points obtained, with more than 50% of the maximum number of points required: satisfactory (3.0): 51–60%, satisfactory plus (3.5): 61–70%, good (4.0): 71–80%, good plus (4.5): 81–90%, very good (5.0): 91–100%.

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

Activity	Number of hours
Course hours	**44**
Other contact hours involving the teacher (consultation hours, examinations)	**5**
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	**26**
Total number of hours	**75**
Total number of ECTS credits	**3**

* 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