A COURSE SYLLABUS – DOCTORAL SCHOOL

REGARDING THE QUALIFICATION CYCLE FROM 2020 TO 2024

GENERAL INFORMATION ABOUT COURSE	
Course title	**Economics of production, costs calculation of mechanized processes in agriculture and horticulture**
Name of the unit running the course	**Doctoral School at University of Rzeszów**
Type of course *(obligatory, optional)*	mandatory facultative subject (specialist) optional
Year and semester of studies	Year- II; semester - winter
Discipline	Agriculture and horticulture
Language of Course	Polish
Name of Course coordinator	Prof. dr hab. Eng. Józef Gorzelany
Name of Course lecturer	Prof. dr hab. Eng. Józef Gorzelany
Prerequisites	Economy, mathematics, basics of agriculture and horticulture production, agricultural technique

BRIEF DESCRIPTION OF COURSE
(100-200 words)

The use of agricultural equipment is associated with costs. One group of these costs is directly related to the use of machines, tools or devices. These are the cost of consumed fuels and electricity, oils and greases, assistant materials and costs of repairs. Labour costs are also included. These costs are proportional to the amount of performed work. They are called utility costs or variable costs. The second group of costs, called maintenance costs or fixed costs, does not_ depend on the amount of work performed. These are the costs of agricultural equipment insurance, road tax on tractors and means of transport, depreciation, interest on capital, garage and maintenance costs. The aim of the course content is introduction to the methodology of calculating machine operating costs, especially with the part concerning the determination of unit costs, product price, and production efficiency. They are focused on determining, preferably multi-variant, effects of changes in all areas of the farm's activity. These changes include technological modernization, technical modernization of a set of machines, etc., and even the considered (planned) purchase of a single machine.

COURSE LEARNING OUTCOMES AND METHODS OF EVALUATING LEARNING OUTCOMES

Learning outcome	The description of the learning outcome defined for the course	Relation to the degree programme outcomes (symbol)	Learning Format (Lectures, classes,...)	Method of assessment of learning outcomes (e.g. test, oral exam, written exam, project,...)
Knowledge (no.)	**(Knows and understands)**			
1.	Knows and understands the basic economics concepts of agricultural and horticultural production and the implementation of the production target based on the market analysis and the production structure	P8S-WG/1	Lecture	Oral test
2.	Knows and understands the rules of rational and economically justified selection of the materials	P8S-WG/2	Lecture, classes	Oral test

	used and the use of machines, tools and devices in agricultural and horticultural production			
3.	Knows and understands research methodology in the discipline of agriculture and horticulture	P8S-WG/3	Lecture, classes	Oral test
Skills (no.)	**(Able to)**			
1.	Can present knowledge and terminology in the field of calculating the costs of mechanized processes in agriculture and horticulture	P8S-UW/1	Calculation classes, development of technological cards	Study on the cost analysis of selected technology in agricultural production
2.	based on the latest methods of calculating unit costs, he is able to analyze and formulate relevant conclusions and opinions on the efficiency of economic production	P8S-UW/2	Lecture, Calculation classes, Drafting test	Study on the cost analysis of selected technology in agricultural production
3.	is able to communicate on specialized topics in an international scientific environment	P8S-UK/1 P8S-UK/5	Discussion during the, development of the exercises	Study on the cost analysis of selected technology in agricultural production
4.	Can determinate the rational use of agricultural tractors and machines on the farm with selected agrotechnical procedures	P8S-UK/2	Lecture, Calculation classes	Study on the cost analysis of selected technology in agricultural production
5.	Can initiate a debate	P8S-UK/3	Discussion during the development of the exercises	Study on the cost analysis of selected technology in agricultural production
6.	Can participate in the scientific discourse	P8S-UK/4	Lecture classes	Study on the cost analysis of selected technology in agricultural production

Social competence (no.)	(Ready to)			
1.	Ready to critically evaluate accomplishments within the discipline	P8S-KK/1	Lecture classes	Oral test
2.	Ready to define economic in the undertaken activities	P8S-KK/3	Lecture classes	Oral test
3.	Ready to initiate action on behalf of the public interest	P8S-KO/2	Lecture classes	Oral test

LEARNING FORMAT – NUMBER OF HOURS

Semester (no.)	Lectures	Seminars	Lab classes	Internships	others	ECTS
III	5	10	———	———	———	0

METHODS OF INSTRUCTION

Lecture: Multimedia presentation
Classes: Calculation studies

COURSE CONTENT

Lectures/ Seminars:

1. Analysis of the production and economic effects of selected activities in agriculture and horticulture.
2. Methodology of calculating unit costs for the production of a specified raw material; product in agricultural production.
3. Classification of costs depending on the type and needs of economic analysis.

Seminars / Lab classes/ others:

1. Development of technological cards of selected agricultura l and horticultural production technologies
2. Based on spreadsheets, calculating the costs of machine units, self-propelled machines and means of transport
3. Calculation of unit costs of fuel, labour, materials etc.
4. Determining the structure of production costs and analysis of the economic effectiveness of selected production technologies in agriculture and horticulture

COURSE ASSESSMENT CRITERIA

The condition for completing the course is achieving all the assumed learning outcomes. Assessment of exercises on the basis of the presented study on the cost-consumption of a selected technology in plant or horticultural production

Grading scale:

- complete and correct study with conclusions -5.0,
- full study with incomplete final conclusions -4.0,
- full study with errors in calculations and interpretation of final conclusions - 3.0

TOTAL PhD STUDENT WORKLOAD REQUIRED TO ACHIEVE THE INTENDED LEARNING OUTCOMES – NUMBER OF HOURS AND ECTS CREDITS

Activity	Number of hours
Scheduled course contact hours	15
Other contact hours involving the teacher (consultation hours, examinations)	———

Non-contact hours – student`s own work (preparation for classes or examinations, project, etc.)	45
Total number of hours	**60**
Total number of ECTS credits	0

INSTRUCTIONAL MATERIALS	
Compulsory literature:	1. Muzalewski A. Zasady doboru maszyn do gospodarstw rolnych. IBMER W-wa 2014. 2. Muzalewski A. Koszty eksploatacji maszyn rolniczych. IBMER W-wa 2003. 3. Pawlak J. Uwarunkowania ekonomiczne a mechanizacja rolnictwa. Roczniki Nauk Rolniczych. T.97. z-3- 2010. 4. Skarżyńska Aldona. Czynniki warunkujące opłacalność produkcji wybranych produktów rolniczych w perspektywie 2020 roku. Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej- PIB Warszawa DOI: 10.5604/00441600.1146912
Complementary literature:	1. Marta Minut-Kaszyńska, Metody wyceny produkcji roślinnej w toku. Minikowo, 2018.ISBN: 978-83-65181-53-4 2. Natalia Matłok, Józef Gorzelany, Grzegorz Witek, Mirela Kotlicka, Edyta Pik. Ocena kosztochłonności i energochłonności produkcji wybranych odmian jabłek w gospodarstwie sadowniczym w województwie lubelskim. W: Monografia „Rolnictwo XXI wieku - problemy i wyzwania 2018" Pod redakcją Dety Łuczyckiej. Idea Knowledge Future Wrocław, 185-194. 3. Gorzelany J., Puchalski Cz., Malach M.: Ocena kosztów i nakładów energetycznych na uprawę kukurydzy na ziarno i kiszonkę. Inżynieria Rolnicza 8 (133) 2011, 135-141. ISSN 1429-7264. 4. Gorzelany J.: Koszty i energochłonność procesów produkcji buraków cukrowych. Inżynieria rolnicza. Nr 1 (119), 2010, s.1q1-197, ISSN 1429-7264.