**Learning outcomes for the field of studies
AGRICULTURE**

1. **Position of the field in the area of education:** the course belongs to the area of education within the scope of agriculture, forestry and veterinary medicine
2. **Profile of education:** general academic
3. **Level and duration of studies:** 2nd cycle of studies (3 semesters)
4. **The graduate:** has acquired the capability of performing research experiments and analysing experimental results, and shows creative initiative and decision-making abilities. He or she has deeper knolwedge in the given field of study, and is familiar with ecologicaal problems arising from the development of rural areas as well as the functioning of agricultural infrastructure. They are also able to apply the methodology of conducting research in agriculture and process data with the aid of up-to-date information technology. The graduate is prepared to work in specialist agricultural farms, research andd development institutions, and agricultural advisory centres. They are prepared for continuous learning and professional development and are ready to undertake research work as well as to enter 3rd cycle studies (doctoral studies). Students in the second cycle of studies can choose the following specialties: agricultural advisory studies, plant protection and seed science, plant production, energy crops, herbology.
5. **Key to codes:**
6. K – learning outcomes of the field of study Agriculture
7. 2 – second-cycle studies
8. A – general academic profile
9. W – knowledge
10. U – skills
11. K –social competences
12. R2A\_ – learning outcomes in the scope of agriculture, forestry and veterinary medicine for second-cycle studies
13. InzA - learning outcomes leading to the acquisition of engineer competences for second-cycle studies
14. 01, 02, 03 and subsequent – learning outcome number

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| Leraning outcome code of the field of study  | Learning outcomes for the field of study: **agriculture** – on graduation from second-cycle studies, the graduate:  | Learning outcome code in the area of education: agriculture, forestry and veterinary medicine, and engineering competences  |
| **knowledge** |
| K2A\_W01 | has broader knowledge, adjusted to the agricultural studies, in the fields of biology, chemistry and physics; has broader knowledge in agri-biotechnology, including: molecular biology, bio-IT and related sciences | R2A\_W01InzA\_W05 |
| K2A\_W02 | shows advanced knowledge in mathematical statistics used in agricultural research | R2A\_W01 |
| K2A\_W03 | has deeper knowledge about the functioning of live organisms on different levels of complexity | R2A\_W01 |
| K2A\_W04 | possesses knowledge of the methods applied in company management, knows methods and tools which facilitate more rational use of input production resources (land, labour, capital) | R2A\_W02InzA\_W04 |
| K2A\_W05 | knows the role of agriculture in the national economy, can characterize production factors and possibilies of their substitution | R2A\_W02R2A\_W09InzA\_W05 |
| K2A\_W06 | knows the concepts used to define food safety and food safety management legal norms | R2A\_W02R2A\_W09InzA\_W04 |
| K2A\_W07 | has the knowledge concerning anthropogenic transformation of the natural environment and the effect of these processes on ecosystems and preservation of biodiversity | R2A\_W03R2A\_W06 |
| K2A\_W08 | shows the knowledge of advanced technologies and tools which enable people to use and manage the potential of agriculture for the sake of an improved quality of human life | R2A\_W04R2A\_W05InzA\_W01InzA\_W05 |
| K2A\_W09 |  knows the principles governing the elaboration and implementation of strategies and programmers which serve the purpose of stimulating the development of rural areas | R2A\_W07InzA\_W03 |
| K2A\_W10 | has deeper knowledge about the technical solutions used in modern agriculture | R2A\_W03R2A\_W04R2A\_W06InzA\_W02InzA\_W05 |
| K2A\_W11 | has deeper knowledge about technologies applied to convert biomass into eco-friendly liquid fluids and understands their effect on the development of rural areas | R2A\_W03R2A\_W04InzA\_W05 |
| K2A\_W12 | has deeper knowledge of the rational use of agricultural space in the development of rural areas; knows the principles of farmland appraisal and turnover | R2A\_W07InzA\_W03 |
| K2A\_W13 | knows the general methodology of experimental research, especially the methods of agrotechnical experiments, including experiment planning, running, modelling, organization and supervision of experiments | R2A\_W05InzA\_W05 |
| K2A\_W14 | knows how to use specialist measuring instruments in laboratories, machines and equipment in applied agriculture | R2A\_W05InzA\_W02 |
| K2A\_W15 | knows how the instruments the EU and national agricultural and structural policy instruments function; has knowledge about the operations of the agribusiness and innovation sector and the importance of social and human capital for the development of rural areas | R2A\_W07InzA\_W04 |
| K2A\_W16 | has deeper knowledge about the range of opportunities and sources of funds available to finance projects in agriculture and agricultural environment | R2A\_W07InzA\_W04 |
| K2A\_W17 | has knowledge in the field of intellectual and industrial property rights and intellectual property rights, management of intellectual property resources and sources of patent information | R2A\_W08 |
| **skills** |
| K2A\_U01 | gathers, critically analyzes and creatively processes different forms of information in order to solve specific problems | R2A\_U01InzA\_U01 |
| K2A\_U02 | present the processed data, own point of view and opinions, using different forms of transmission | R2A\_U02 |
| K2A\_U03 | confidently uses modern information technologies in the field of data collection, calculations, simulations, interpretations and presentation of results | R2A\_U03InzA\_U01InzA\_U02 |
| K2A\_U04 | plans and performs a research task, a design task or an experiment in agriculture, which leads to finding answers to set questions and to finally formulating correct conclusions | R2A\_U04InzA\_U02 |
| K2A\_U05 | process statistically experimental designs and assess the probability and significance of natural and economic events | R2A\_U04InzA\_U04 |
| K2A\_U06 | is able to make a quantitative analysis of plant and soil material, without assistance, and can operate basic measurement equipment | R2A\_U05InzA\_U05 |
| K2A\_U07 | shows solutions which take into account environmental and technical factors that enable one to improve the efficiency and profitability of agricultural production | R2A\_U05InzA\_U05 |
| K2A\_U08 | has the skill to search for, analyze and use creatively the information from EU directives and national law regarding production of biofuels and generation of bioenergy; can use biomass and biofuels to generate energy on a farm | R2A\_U05InzA\_U06 |
| K2A\_U09 | analyzes causes underlying the course of economic processes and events in own company and its environment; is able to predict their influence on economic processes | R2A\_U07InzA\_U03 |
| K2A\_U10 | analyzes the impact of plant production and plant processing techniques, processes and technologies on the production efficiency, product quality and the natural environment, using the knowledge and skills obtained during the completed specialist course of study | R2A\_U05InzA\_U07 |
| K2A\_U11 | interprets results of an economic analysis of the operations and efficiency of agricultural and food markets in the context of own business activity | R2A\_U05InzA\_U04 |
| K2A\_U12 | uses advanced laboratory methods and techniques in sensory research and in qualitative and quantitative analysis, adjusted to the specific nature of the completed course of study | R2A\_U05InzA\_U01 |
| K2A\_U13 | plans basic technological processes in plant production and plant processing, using the knowledge and skills obtained during the completed course of study | R2A\_U06InzA\_U08 |
| K2A\_U14 | suggests solutions which take into account genetic and environmental factors, as well as production techniques, systems and technologies which enable obtaining better plant production efficiency and profitability, improved quality of plant raw materials and products, using for this aim the knowledge and skills gained during the completed course of study | R2A\_U06InzA\_U03 |
| K2A\_U15 | suggests alternative directions in agricultural production, different from traditional ones, which create new opportunities for the development of rural areas | R2A\_U06InzA\_U08 |
| K2A\_U16 | evaluates disadvantages, advantages and innovative character of applied and proposed (by himself/herself) solutions on different levels of complexity (methods, systems, processes, technologies), used in plant production as well as animal rearing, in terms of production efficiency and quality of raw plant and animal produce, including the impact on the natural environment, using for this aim the knowledge and skills obtained during the completed course of study | R2A\_U07InzA\_U04 |
| K2A\_U17 | prepares reports, designs, presentations and other written documents, concerning detailed including papers in a foreign language and necessitating the use of references in foreign languages | R2A\_U08 |
| K2A\_U18 | writes a master thesis, with the compulsory component such as a summary in a foreign language | R2A\_U08 |
| K2A\_U19 | prepares advanced presentations and oral reports on specific problems connected with the pursued course of study, including the use of a foreign language and sources in foreign languages | R2A\_U09 |
| K2A\_U20 | uses one of the contemporary foreign languages on the level of competence B2+ in the Common European Framework of Reference for Languages, including the specialist vocabulary connected with the course of study | R2A\_U10 |
| **social skills** |
| K2A\_K01 | is aware that one needs to learn all life to respond to changing demands of the labor market and competition on this market | R2A\_K01 |
| K2A\_K02 | can inspire others to learn, owing to the possessed knowledge and skills | R2A\_K01 |
| K2A\_K03 | is ready to exchange rational and sound arguments in a discussion, which enable reaching common ground | R2A\_K02 |
| K2A\_K04 | Is able to work on one’s own and in a team, and to manage human resources by setting and supervising tasks | R2A\_K02R2A\_K03 |
| K2A\_K05 | notices and resolves basic problems concerning technology, the natural environment or economics in agricultural production | R2A\_K04InzA\_K01 |
| K2A\_K06 | Acts in accordance with basic rules of ethics concerning food production and use of animal world resources | R2A\_K05 |
| K2A\_K07 | demonstrates an eco-friendly attitude and responsibility for the surrounding animate world, on different levels of its organization, based on the awareness of threats arising from the use of physical, chemical and biological factors | R2A\_K05R2A\_K06InzA\_K01 |
| K2A\_K08 | is able to predict and assess the most essential agricultural and non-agricultural effects of actions undertaken in agricultural production and research | R2A\_K06InzA\_K01 |
| K2A\_K09 | sees the possibilities and justification for undertaking actions so as to limit the threats due to more intensive agricultural production | R2A\_K06 |
| K2A\_K10 | is focused on the continuous improvement of professional qualifications, including expert skills, which enable active participation in economic and social life | R2A\_K07 |
| K2A\_K11 | demonstrates a prospective and business-oriented way of thinking, in the context of using the acquired knowledge and skills in actions related to thee future professional work | R2A\_K08InzA\_K02 |

**GENERAL REQUIREMENTS:**

To achieve qualifications from the second-cycle studies, all the above learning outcomes are required.

**STRUCTURE OF THE COURSE OF STUDIES**

Second-cycle studies, 3 semesters, number of ECTS credits – 90.

**PRACTICAL TRAINING**

The practical training is dedicated to writing a Master thesis, it takes 4 weeks and is scheduled in agreement with the thesis’ supervisor. The outcome of the practical training placement, aside from gaining specialist skills, consists of data and references need for writing the dissertation.