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PhD study program in Plant protection

Agricultural university-Plovdiv

Harmonization and Innovation in PhD Study Programs for Plant Health in Sustainable Agriculture –HarISA is a Erasmus+ project funded with the suport of the European Union. Project Number: 598444-EPP-1-2018-1-HR-EPPKA2-CBHE-JP (2018-2472 / 001-001)

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The Bologna Process and the Main Achievements of Every Member State – „THE BOLOGNA PROCESS: MEMBER STATES", 2008

ACHIEVEMENTS TO DATE

The Implementation of the Bologna Process in the MS: General Overview

- **The Three-Cycle Structure for Higher Education**
- **The European Credit Transfer and Accumulation Systems (ECTS)**
- **The Diploma Supplement**

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The Republic of Bulgaria is amongst the 29 countries which on 19 June 1999 signed in Bologna the Joint Declaration for a European Higher Education Area. Accession to the Bologna process is voluntary, but the implementation of the commitments taken becomes obligatory following the accession.

As a result of the active participation in the Bologna process the following key characteristics have been introduced in Bulgaria:

- 3-degree higher education system:

1.**Bachelor** – comprises two levels – “professional bachelor in …. ”-180 credits, and “bachelor”-240 credits;

2.**Master** -60-120 credits;

3.**Doctor -**180 credits;

- A credit accumulation and transfer system;
- European diploma supplement.

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After Yerevan Conference of European Higher Education Area (EHEA) **in 2015, Agricultural University-Plovdiv** has been moving forward and its PhD programmes have been aligned with the Bologna process.

Since 2018, ECTS has been integrated in the programmes as

- **both a credit accumulation and transfer system,**
- **with learning outcomes and**
- **student workload increasingly used as the basis for credit allocation.**

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PhD study program in Plant protection
Agricultural university-Plovdiv

General information

- **Title: *Plant protection;* Duration: *3-year course***
- **Structure:**

Number of credits: *180*

Number of obligatory and elective courses:

Obligatory – 1 course depending on the specific topic of the PhD thesis (entomology; plant pathology; herbology, etc.) -10 credits

Elective – 5 credits per course: Statistics and experimental design; Working with scientific databases; Training methodology

- *Research work – 50 credits; Annual reports 3x10 credits -30 credits; Teaching experience with BSc students in subjects related to the PhD topic– up to 7 credits; Publications in scientific journals – 3 x 10 credits; Participation in a conference/seminar – 5 credits; Pre-Defense at the department – 50 credits*

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- *Teaching experience with BSc students in subjects related to the PhD topic– up to 7 credits*
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Number of obligatory and elective courses:

Obligatory – 1 course depending on the specific topic of the PhD thesis (entomology; plant pathology; herbology, etc.) -20 credits

Elective – 5 credits per course: Statistics and experimental design; Databases in Plant protection; Teaching methods in agricultural studies

- *Research work – 50 credits; Annual reports 3x10 credits -30 credits; Teaching experience with BSc students in subjects related to the PhD topic– up to 7 credits; Publications in scientific journals – 3 x 10 credits; Participation in a conference/seminar – 5 credits; Pre-Defense at the department – 50 credits*

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- *Research work – 50 credits*
- *Annual reports 3x10 credits -30 credits*
- *Teaching experience with BSc students in subjects related to the PhD topic– up to 7 credits*
- *Publications in scientific journals – 5 to 30 credits related to the national scientific qualification criteria*
- *Participation in a conference/seminar – 5 credits*
- *Pre- Defense at the department – 50 credits*

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Learning outcomes

Knowledge

- has and uses specialized and systematic knowledge to make a critical analysis and synthesize new ideas
- proficiently employs the methods of scientific research in the field of Plant protection
- ability to broaden and improve current knowledge in the field of Plant protection as well as its interaction with close scientific areas
- demonstrates knowledge with the highest degree of complexity and carries out original research
- demonstrates knowledge and understanding at the highest possible degree not only in Plant protection but also in related scientific areas
- demonstrates and applies knowledge through the degree of complexity of the conducted, recognized and well-founded academic research

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Learning outcomes

Skills

- ability to find solutions to complicated problems by employing new technological methods and instruments
- quickly gathers, extracts, classifies, synthesizes and assesses the required data both from detailed and scarce sources
- ability to solve and overcome serious problems in a research field and/or innovation, improve standard models and approaches, develop innovative solutions by combining a variety of original strategies and technologies, manage unsuccessful attempts and continue developing, improve standard models and approaches
- has methods and means to foresee changes and problems, disregard the context and think innovatively, develop and propose reasonable plans, put into effect new ideas, acquire quickly new skills and qualities, foresee technological and creative development, write and present new scholarly and technical documents (scientific articles, summaries, reports, figures, graphs, etc.); communicate through different media in front of diverse audiences
- has the following skills: resilience, entrepreneurial spirit, tenacity, strictness, adaptability and intellectual flexibility

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Learning outcomes

Competences

Autonomy and Responsibility

- *creates and interprets new knowledge on the basis of own research or other scholarly activity*
- *ability to evaluate the merits of own research*
- *ability to make up, design, implement and adapt a contemporary research process in conformity with scholarly norms*

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Learning outcomes

Competences

Learning Competences

- *has a capacity for a systematic acquisition and understanding of a considerable amount of knowledge about the latest scientific achievements in Plant protection or a field of professional practice*

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Learning outcomes

Competences

Communicative and Social Competences

- *show qualities and transferable skills which require an enhanced sense of personal responsibility and self-initiative in complex and unpredictable circumstances as well as in professional or similar contexts*
- *can communicate effectively in some of the most common European languages*

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Learning outcomes

Competences

Professional Competences

- *has a profound understanding of the techniques used for scientific and complex academic research in the field of Plant protection*
- *makes a thorough evaluation of complex issues in the field of study, often in the absence of extensive data, and presents one's own ideas and conclusions clearly and effectively*
- *capacity to continue conducting fundamental or applied scientific research at increasingly complex levels, contributing to the development of new techniques, ideas or approaches*

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List of 5 already completed PhD thesis

- ✓ The Tomato borer, *Tuta absoluta* Meyrick (Lepidoptera: Gelechidae) – distribution in Bulgaria, biology and control options.
- ✓ Root-knot nematodes of the genus Meloidogyne Goeldi on potatoes in southern Bulgaria
- ✓ Aphid species (Hemiptera: Aphididae) on stone fruit species - spreading, harmful activity and control
- ✓ peach leaf curl disease (*Taphrina deformans* (Berk) Tul.) in Bulgaria.
- ✓ Fungal diseases on lavender in Bulgaria.
- ✓ Comparative study of weed control systems in the sunflower in the conditions of Central South Bulgaria

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List of 5 PhD thesis that are in the process (approved topics)

- ✓ Biology of the southern stink bug *Nezara viridula* (Linnaeus) (Hemiptera: Pentatomidae) and control options.
- ✓ Parasitic species of nematodes of the genus Aphelenchoides Fischer on rice plantations in southern Bulgaria.
- ✓ Epidemiology and control of Cherry leaf spot (*Blumeriella jaapii*) on cherry and sour cherry
- ✓ Exploration of microorganisms that accelerate the degradation of plant debris.
- ✓ Isolation and characterization of microorganisms stimulating growth and development in cereals.

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SWOT analysis

STRENGTHS

- ✓ 78 year-long traditions in agricultural education and science, including 35 in Plant protection.
- ✓ Traditionally strong contacts in the area of Plant protection with leading scientists and experts worldwide.
- ✓ Close contacts and good communication with leading national research institutions.
- ✓ Experimental fields and glasshouses, certified laboratory complex.
- ✓ Facilitated and fast communication among researchers in solving interdisciplinary scientific tasks.
- ✓ Well-stocked university library serving teaching/training/learning activities. Access to international online databases.
- ✓ Significant financial resources for research activities attracted by international scientific and operational programs through bilateral agreements with EU countries, China, etc. and the National Science Fund.
- ✓ Stimulating the scientific work of young scientists.

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SWOT analysis

WEAKNESSES

- ✓ **Insufficient or outdated research equipment and laboratory appliances and resources at some departments (research units).**
- ✓ **Outdated infrastructure of insufficient capacity to meet present-day demands.**
- ✓ **Insufficient funding for research activity strongly dependent on government funding.**
- ✓ **Still low scientific capacity to participate in European scientific networks and applied research projects.**
- ✓ **Demographic crisis and low remuneration for young people are a barrier to academic and scientific careers.**
- ✓ **Self-confidence deficit of academic staff to break out of routine research and search for innovative solutions.**

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SWOT analysis

OPPORTUNITIES

- ✓ **Opportunities for developing Plant protection projects related to State priorities.**
- ✓ **Opportunities for training more undergraduate, post-graduate and doctoral students as well as young researchers in the field of Plant protection.**
- ✓ **Possibilities for international knowledge exchange within joint projects.**
- ✓ **Growing interest in training foreign students from countries outside the European Union.**
- ✓ **Contacts, mobility and exchange of researchers and students in frame of bi- and multilateral co-operations.**
- ✓ **Enhanced opportunities for the education-science-business relationship and practical contacts.**
- ✓ **Upgrading existing communication and educational networks.**
- ✓ **Membership in the EU - facilitated contacts, mobility and exchange of scientists, joint projects.**

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SWOT analysis

THREATS

- ✓ **Expensive maintenance of the material and technical base.**
- ✓ **Deterioration of the economic situation and insufficient funding for both research, education and the renovation of the existing infrastructure and equipment.**
- ✓ **Low remuneration, lack of incentives and difficulties in attracting young people into the higher education and research sector.**
- ✓ **Possible demotivation in terms of research, particularly strong in young scientists due to legal and organizational difficulties, slow career development and low payment.**
- ✓ **The frequent changes in the Regulations and Rules lead to reorganisations and reforms. Incompetent interference of politics with science and education. Increased competition.**

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