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Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
RUDN University

Agrarian -Technological Institute
educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Plant Protection
course title

Recommended by the Didactic Council for the Education Field of:

35.04.04 Agronomy
field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

General Agriculture
higher education programme profile/specialisation title

2025

1. COURSE GOAL(s)

The purpose of mastering the discipline " Plant Protection " is included in the master's degree program "General Agronomy" in the direction of 04/35/04 "Agronomy" and is studied in the 3rd semester of the 2nd year. The discipline is implemented by the Agrobiotechnology Department. The discipline consists of 7 sections and 9 topics and is aimed at studying pests and diseases in agriculture, protective measures against them.

The purpose of mastering the discipline is to build a modern system of protective measures against a complex of pests and diseases and the technology of its implementation.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the discipline " Plant Protection " is aimed at the formation of the following competencies (part of the competencies) among students:

Table 2.1. List of competences that students acquire through the course study

Competence code	Competence descriptor	Competence formation indicators (within this course)
GC-7	Able to search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems, evaluate information, its reliability, and build logical conclusions based on incoming data	GC-7.1 Evaluates information, its reliability, and draws logical conclusions based on incoming information and data; GC-7.2 has practical experience in searching, perceiving, storing, analyzing, and transmitting information and data using digital tools, algorithms, and applications to solve tasks.;
OPK-7	Able to master the tools for working with large amounts of structured and unstructured information, use modern digital methods of data processing, analysis, interpretation and visualization in order to solve the tasks of professional and research activities in the field of agronomy	OPK-7.1 Owns the tools for working with large amounts of structured and unstructured information.; OPK-7.2 Uses modern digital methods of data processing, analysis, interpretation and visualization in order to solve its tasks.;
PC-1	Able to organize experiments (field experiments) to evaluate the effectiveness of innovative technologies (technology elements), varieties and hybrids in production conditions	PC-1.1 Develops a research program to study the effectiveness of innovative technologies (technology elements), varieties and hybrids, develops experimental methods, and develops new research methods;
PC-2	Able to develop and implement environmentally friendly techniques and technologies for the production of high-quality crop production, taking into account the properties of agricultural landscapes and economic efficiency	PC-2.2 Organizes quality control and safety of crop production;

PC-3	Able to identify areas for improving and increasing the efficiency of crop production technologies based on scientific achievements and best practices of domestic and foreign manufacturers	PC-3.2 Carries out operational regulation of the course of crop production;
PC-4	Able to create models of crop cultivation technologies, plant protection systems, varieties	PC-4.1 Creates models of crop cultivation technologies, plant protection systems, varieties

3.COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

Mastering the discipline " Plant Protection " is aimed at forming the following competencies (part of the competencies) among students:

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	**Competence descriptor**	**Previous courses/modules***	**Subsequent courses/modules***
GC-7	Able to search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems, evaluate information, its reliability, and build logical conclusions based on incoming data	Information Technology; Pests and Diseases; Information Databases; Soil Fertility Management; Научно-исследовательская работа;	Soil Fertility Management; Научно-исследовательская работа; Undergraduate practice / Преддипломная практика;
OPK-7	Able to master the tools for working with large amounts of structured and unstructured information, use modern digital methods of data processing, analysis, interpretation and visualization in order to solve the tasks of professional and research activities in the field of agronomy	Information Technology; Pests and Diseases; Научно-исследовательская работа; Technological Training;	Научно-исследовательская работа; Undergraduate practice / Преддипломная практика;
PC-1	Able to organize experiments (field experiments) to evaluate the effectiveness of innovative	Научно-исследовательская работа;	Научно-исследовательская работа;

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
	technologies (technology elements), varieties and hybrids in production conditions	Technological Training; Information Technology; Crop Production; Mechanization of Crop Production; Pests and Diseases; Soil Fertility Management;	Undergraduate practice / Преддипломная практика; Crop Production; Breeding and Seed Production; Soil Fertility Management;
PC-2	Able to develop and implement environmentally friendly techniques and technologies for the production of high-quality crop production, taking into account the properties of agricultural landscapes and economic efficiency	Crop Production; Pests and Diseases; Technological Training; Научно-исследовательская работа;	Crop Production; Breeding and Seed Production; Научно-исследовательская работа;
PC-3	Able to identify areas for improving and increasing the efficiency of crop production technologies based on scientific achievements and best practices of domestic and foreign manufacturers	Научно-исследовательская работа; Technological Training; Crop Production;	Научно-исследовательская работа; Crop Production; Postharvest Management; Breeding and Seed Production;
PC-4	Able to create models of crop cultivation technologies, plant protection systems, varieties	Crop Production; Научно-исследовательская работа;	Crop Production; Breeding and Seed Production; Научно-исследовательская работа; Undergraduate practice / Преддипломная практика;

* To be filled in according to the competence matrix of the higher education programme.

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

Possible wording

The total labor intensity of the discipline " Plant Protection " is 5 credits for full-time education.

Table 4.1 – Types of educational work by periods of mastering the OP HE for full-time education

Type of academic activities	Total academic hours	Semesters/training modules			
		1	2	3	4
Contact academic hours	*85*			*85*	
including:					
Lectures (LC)	34			34	
Lab work (LW)					
Seminars (workshops/tutorials) (S)	*51*			51	
Self-studies	*77*			*77*	

Type of academic activities		Total academic hours	Semesters/training modules			
			1	2	3	4
Evaluation and assessment (exam/passing/failing grade)		*18*			*18*	
Course workload	academic hours_	**180**			**180**	
	credits	**5**			**5**	

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Module 1: Phytopathogenic complex on various crops	1.1 Damage to crops by a complex of pests and diseases; symptoms of complex damage; sources of primary and secondary infection	LC; S
Module 2: Basic plant protection methods	2.1 Advantages and disadvantages of individual plant protection methods; combination of different protection methods; preventive and extermination measures	LC; S
Module 3: Agrotechnical method of plant protection	3.1 Advantages and disadvantages of the agrotechnical method of protection; the role of crop rotation and tillage in regulating the phytosanitary condition of crops and plantings	LC; S
Module 4: Physical and mechanical methods of plant protection	4.1 Advantages and disadvantages of physical and mechanical methods of protection; the use of various physical factors for disinfection of seed and planting material	LC; S
Module 5. Quarantine	5.1 Quarantine as a method of plant protection; quarantine measures, quarantine diseases, pests and weeds; external and internal quarantine measures	LC; S
Module 6: Biological method of plant protection	6.1 Advantages and disadvantages of the biological method of protection; the use of natural enemies of phytophages, parasitic and predatory vertebrates, fungi antagonists, hyperparasites	LC; S
Module 7: Chemical method of plant protection	7.1 Advantages and disadvantages of the chemical method of protection; the main groups of chemicals;	LC; S
	7.2 Purpose, nature of action, formulation forms, methods of preparation and application of working solutions, compatibility of drugs	LC; S
	7.3 Safety measures in the fight against chemical plant protection products from different groups;	LC; S

* - to be filled in only for **full** -time training: *LC - lectures; LW - lab work; S - seminars.*

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	**Classroom equipment**	**Specialised educational / laboratory equipment, software, and materials for course study** (if necessary)
Lecture hall	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a blackboard (screen) and multimedia presentation equipment	
Scientific Laboratory	An auditorium for laboratory work, individual consultations, routine monitoring and intermediate certification, equipped with a set of specialized furniture and equipment.	
Laboratory	An auditorium for laboratory work, individual consultations, ongoing monitoring and intermediate certification, equipped with a set of specialized furniture and equipment.	
Self-studies	A classroom for independent work of students (can be used for seminars and consultations), equipped with a set of specialised furniture and computers with access to the electronic information and educational environment.	

* The premises for students' self-studies are subject to **MANDATORY** mention

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. Integrated plant protection / T. V. Dolzhenko, L. E. Kolesnikov, A. G. Semenova [et al.]. — 3rd ed., ster. — St. Petersburg : Lan, 2024. — 120 p. — ISBN 978-5-507-47304-5. — Text : electronic // Lan : electronic library system. — URL: https://e.lanbook.com/book/359825

2. Sternshis, M. V. Biological protection of plants : a textbook for universities / M. V. Sternshis, I. V. Andreeva, O. G. Tomilova. — 7th ed., erased. — Saint Petersburg : Lan, 2024. — 332 p. — ISBN 978-5-507-49266-4. — Text : electronic // Lan : electronic library system. — URL: https://e.lanbook.com/book/384752

Additional readings:

1. Zykin, A.V. English for agricultural universities. Plant protection and quarantine, entomology, phytopathology / A.V. Zykin, N. G. Kovalenko. — Saint Petersburg : Lan, 2023. — 144 p. — ISBN 978-5-507-45410-5. — Text : electronic // Lan : electronic library system. — URL: https://e.lanbook.com/book/302420

2. Biological protection of plants from stress: a textbook for universities / L. Z. Karimova, V. A. Kolesar, R. I. Safin, G. K. Khuzina. — 3rd ed., erased. — Saint Petersburg : Lan, 2024. — 100 p. — ISBN 978-5-507-49137-7. — Text : electronic // Lan : electronic library system. — URL: https://e.lanbook.com/book/379346

Internet sources

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System (RUDN ELS) http://lib.rudn.ru/MegaPro/Web
- EL "University Library Online" http://www.biblioclub.ru
- EL "Yurayt" http://www.biblio-online.ru
- EL "Student Consultant" www.studentlibrary.ru
- EL "Lan" http://e.lanbook.com/

2.Databases and search engines:

- electronic foundation of legal and normative-technical documentation http://docs.cntd.ru/
- Yandex search engine https:// www .yandex.ru/
- Google search engine https://www.google.ru/
- Scopus abstract database http://www.elsevierscience.ru/products/scopus/

*Training toolkit for self- studies to master the course *:*

The set of lectures on the course « Plant Protection »

* The training toolkit for self- studies to master the course is placed on the course page in the university telecommunication training and information system under the set procedure.

DEVELOPERS:

position, department	name and surname
position, department	name and surname
position, department	name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

name of department	name and surname

HEAD
OF HIGHER EDUCATION PROGRAMME:

position, department	name and surname