Federal State Autonomous Educational Institution of Higher Education

PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE LUMUMBA

Agrarian and Technological Institute

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Phytopathology and Plant Protection
course title

Recommended by the Didactic Council for the Education Field of:

35.03.09 Landscape architecture

Management and design of urban green infrastructure

field of studies / speciality code and title

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

Landscape architecture

higher education programme profile/specialisation title

1. COURSE GOAL(s)

Goal is to obtain basic theoretical knowledge and practical skills in phytopathology and plantprotection to study of theoretical and practical basis for detection of different plant diseases; to study of modern plant protection technology and combinative application of different protectivemeasures; for fundamental and practical acquisition for pests, diseases and weed control.

2. REQUIREMENTS FOR LEARNING OUTCOMES

The course is designed for students to acquire following competences:

Table 2.1. List of competences that students acquire during the course

Competence code	Competence descriptor	Competence formation indicators (within this course)
UK-1	Student is able to search, critically analyze problem situations on the basis of a systematic approach, to develop a strategy of action.	UK-1.1 Student is able apply systematization tosolve tasks; UK-1.2 Student is able search and analyze information.
UK-3	Student is able to organize and lead a team, developing a team strategy to achieve thegoal.	UK-3.1 Student is able organize team work on the project; UK-3.2 Student is able interact with the executive authorities to coordinate all stages of the project.
UK-4	Student is able to use modern communication technologies in the state language of theRussian Federation and foreign language(s) for academic and professional interaction.	UK-4.1 Student is able prepare all necessary project documentation in Russian and foreign languages; UK-4.2 Student is able communicate on the project in Russian and foreign languages;
UK-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	UK-5.1 Student is able understand the features of the social organization of society, the specifics of the mentality and worldview of the cultures of the West and East; UK-5.2 Student is able overcome the cultural barrier, perceivingintercultural differences.
UK-6	Student is able to identify and implement the priorities of his/her own activities andways to improve them on the basis ofself-assessment.	UK-6.1 Student is able plan their life activities for the period of study in an educational organization; UK-6.2 Student is able to determine thetasks of self-development and professional growth, distribute them into long-term and short-term ones with justification of their relevance and determination of the necessary resources.
GPC-1	Student is able to analyze modern problems of science and production, solve complex(non-standard) tasks in professional activities.	GPC-1.1 Student is able to solve complex (non-standard) tasks in professional activities; GPC-1.2 Student is able to analyze modern problems of science and production;
GPC-2	Student is able to impart professional knowledge using modern pedagogical techniques.	GPC-2.1 Capable of transferring professional knowledge, GPC-2.2 Student is able to transfer professional knowledge using informationtechnology.

Competence code	Competence descriptor	Competence formation indicators (within this course)
GPC-3	Student is able to develop and implement new effective technologies in professional activity.	GPC-3.1 Student is able to implement new effective technologies in professional activities; GPC-3.2 Student is able to develop new effective technologies in professional activities.
GPC-4	Student is able to conduct scientific research, analyze results, and prepare reporting documents.	GPC-4.1 Capable of conducting scientific research; GPC-4.2 Student is able to prepare reporting documentation;
GPC-5	Student is able to carry out a feasibility study of projects in professional activities.	GPC-5.1 Student is able to carry out economic feasibility study of projects; GPC-5.2 Student is able tocarry out feasibility study of projects.
GPC-6	Student is able to manage teams and organize production processes.	GPC-6.1 Ability to organize production processes; GPC-6.2 Ability to manage theteam.
PC-3	Ability to assess the impact of landscape management and use activities in relation to enhancing the quality and safety of the human environment	PC-3.1 Student is able to organise the sustainable management of the improvement site; PC-3.2 Student is able to monitor the condition of the improvement site.
PC-10	Preparedness for the management of landscape architecture sites in terms of their functional use, protection and conservation	PC-10.1 Ability to manage landscape architecture objects in the field of conservation and protection; PC-10.2 Ability to manage landscape architecture facilities.

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course «Phytopathology and Plant Protection» refers to the variable component of (B1) block B1 of the higher educational programme curriculum.

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

Competence code	Competence descriptor	Previous courses/modules, Courses*	Subsequent courses/modules, Courses*
UK-1	Student is able to search, critically analyze problem situations on the basis of a systematic approach, to develop a strategy of action.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Green infrastructure urban climate and carbon neutrality; Scientific writing skills; Research planning; Scientific research.	-

Compet ence code	Competence descriptor	Previous courses/modules, Courses*	Subsequent courses/modules, Courses*
UK-3	Student is able to organize and lead a team, developing a team strategy to achieve thegoal.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Green infrastructure urban climate and carbon neutrality; Urban ecology; Scientific writing skills; Research planning; Scientific research.	-
UK-4	Student is able to use modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Foreign Language; Green infrastructure urban climate and carbon neutrality; Research planning; Scientific research.	-
UK-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Green infrastructure urban climate and carbon neutrality; Scientific writing skills; Research planning; Scientific research.	-
UK-6	Student is able to identify and implement the priorities of his/her own activities andways to improve them on the basis of self-assessment.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Green infrastructure urban climate and carbon	-

Compet ence code	Competence descriptor	Previous courses/modules, Courses*	Subsequent courses/modules, Courses*
		neutrality; Urban ecology; Scientific writing skills; Research planning; Scientific research.	
GPC-1	Student is able to analyze modern problems of science and production, solve complex(non-standard) tasks in professional activities.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Scientific writing skills; Research planning; Scientific research.	-
GPC-2	Student is able to impart professional knowledge using modern pedagogical techniques.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Green infrastructure urban climate and carbon neutrality; Scientific writing skills; Research planning; Scientific research.	-
GPC-3	Student is able to develop and implement new effective technologies in professional activity.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Urban ecology; Scientific writing skills; Research planning; Scientific research.	-
GPC-4	Student is able to conduct scientific research, analyze results, and prepare reportingdocuments.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Scientific writing skills; Research planning; Scientific research.	-

Competence code	Competence descriptor	Previous courses/modules, Courses*	Subsequent courses/modules, Courses*
GPC-5	Student is able to carry out a feasibility study of projects in professional activities.	Data analysis and statistics; International regulation in city planning and environmental protection; Landscape planning and sustainable development; Scientific writing skills; Research planning; Scientific research.	-
PC-3	Ability to assess the impact of landscape management and use activities in relation to enhancing the quality and safety of the human environment		-
PC-10	Preparedness for the management of landscape architecture sites in terms of their functional use, protection and conservation	Landscape planning and sustainable development; Green infrastructure urban climate and carbon neutrality.	-

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

4. COURSE WORKLOAD

The total workload of the course is 6 credits (216 academic hours).

5. COURSE CONTENTS

Table 5.1. Course contents*

Modules	Contents (topics, types of practical activities)	Workload, academic hours
Symptoms of plant diseases	Main symptoms on different plant groups. Possible losses from diseases/ Direct and non direct losses	2
Infectious and noninfectious plant diseases	Noninfectious diseases. Environment conditions/ causingplant diseases	3
Mean groups of pathogens	Viruses, viroids, bacteria, fungi. Pathogenesis in different plants	3
Viral diseases	Symptoms, contamination, possible losses, identification	2
Bacterial diseases	Symptoms, contamination, possible losses, identification	2
Fungal diseases	Symptoms, contamination, possible losses, identification	2

Modules	Contents (topics, types of practical activities)	Workload, academic hours
Seeds and planting stock contamination	Identification. Possible losses	2
Main groups of pests	Symptoms of contamination. Possible losses	2
Methods of plant protection. Host plant resistance.	Cultural, physical, chemical, biological means of plant diseases, pests and weed control. Quarantine for pathogensmanagement	2
Cultural control	Preparation of plant material, plant residues, fertilization, plant density	2
Physical method of plant protection	Cooling and freezing. Drying and desicants. Modified atmospheres	2
Chemical control	Main groups of chemicals. Application forms. Pests, diseasesand weed chemical control	2
Biological control	Biological agents for diseases, pests and weed control	2
Plant quarantine	Main groups of quarantine pests, diseases and weeds. What is quarantine	3
Integrated pest management	Combination of strategies and tactics. Different means of plant protection, combined with each other. Environmentpollution	3
Independent work of students.		162
Control (exam/test with assessment).		20
TOTAL:		**216**

6. COURSE EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

The infrastructure and technical support necessary for the course implementation include: certified soil-ecological laboratory, Laboratory of plant pathology, Laboratory of entomology, Laboratory of virology and plant immunity, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment. (rooms 203, 418). Specialized educational/laboratory equipment includes Draper Diplomat 213x213 83" tripod screen, Microscopes, a workstation based on a complete system unit and a monitor for working with graphical applications. Model AG_PC Axiom Group/Intel Core I3 Processor 8 Cooperative memory Crucial by Micron DDR4 8SV*2;Motherboard PRIME B360-PLUS; MoHHTop Samsung 23.5, Software ArchiCAD 15, AutoCAD12, SketchUp, QGIS 2.10 (Quantum GIS).

7. RESOURCES RECOMMENDED FOR COURSE
a) main literature:

G.Olsen "IPM in Agriculture", 2009, USA, 358p.

Natural Enemies in Crops and Landscapes. 2006, USA, California, 358p.
b) supplementary literature:

IPM for Weed Identification in Field Crops, 2007, USA, Michigan University, 107p.
c) software and databases
http://bvi.rusf.ru/sista/alf_
1047.htmwww.cnshb.ru

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF Students' COMPETENCES LEVEL AS COURSE RESULTS

The assessment toolkit and the grading system* to evaluate the level of competences (competences in part) formation as the course results are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed based on the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

Associate Professor, department of landscape planning and sustainable ecosystems		**V. I. Vasenev**
position, educational department	signature	name and surname.

HEAD OF EDUCATIONAL DEPARTMENT:

Director, department of landscape planning and sustainable ecosystems		**E. A. Dovletyarova**
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HEAD OF
HIGHER EDUCATION PROGRAMME:

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