Federal State Autonomous Educational Institution for Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA

Agrarian and Technological Institute

WORKING COURSE SYLLABUS

Space technologies at the service of the agro-industrial complex

Recommended by the Methodological Council for the Education Field:

36.05.01 Veterinary medicine

2022

1. GOALS AND OBJECTIVES OF THE DISCIPLINE

The aim of mastering the discipline "**Space technologies at the service of the agro-industrial complex**" is to provide the student with a deeper knowledge of various devices used in outer space that can be used for the benefit of agricultural production.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline "**Space technologies at the service of the agro-industrial complex**" is aimed at creating the following competencies (parts of competencies) for students:

Table 2.1. List of competencies formed by students during the development of the discipline (results of the development of the discipline)

Code	**Competence**	**Indicators of competence accomplishment** (within the discipline)
UK-1	The ability to carry out a critical analysis of problem situations based on a systematic approach, to develop a strategy of action.	UK-1.1 Analyzes the task, highlighting its basic components;
		UK-1.2 Defines and ranks the information required to solve the task;
		UK -1.3 Searches for information to solve the task by various types of queries;
		UK-1.4 Offers solutions to the problem, analyzes the possible consequences of their use;
		UK -1.5 Analyzes the ways of solving problems of a philosophical, moral and personal nature based on the use of basic philosophical ideas and categories in their historical development and socio-cultural context.
UK -2	The ability to manage a project at all stages of its life cycle.	UK-2.1 Formulates a problem, the solution of which is directly related to the achievement of the project goal;
		UK -2.2 Defines the links between the tasks set and the expected results of their solution;
		UK -2.3 Within the framework of the tasks set, determines the available resources and restrictions, the current legal norms;
		UK -2.4 Analyzes the schedule for the implementation of the project as a whole and chooses the best way to solve the tasks, based on the current legal norms and available resources and limitations;

		UK -2.5 Monitors the progress of the project, adjusts the schedule in accordance with the results of the control.
UK -12	The ability to search for the necessary sources of information and data, to 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; to evaluate information, its reliability, build logical conclusions based on incoming information and data.	UK -12.1 Searches for the necessary sources of information and data, perceives, analyzes, remembers and transmits 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;
		UK-12.2 Evaluates information, its reliability, builds logical conclusions based on incoming information and data.

3. COURSE IN HIGHER EDUCATION

The discipline "**Space technologies at the service of the agro-industrial complex**" belongs to the part formed by the participants of educational relations of the block B1of the Educational Program of Higher Education.

As part of the Educational Program of Higher Education, students also master other disciplines and /or practices that contribute to achieving the planned results of mastering the discipline "**Space technologies at the service of the agro-industrial complex**".

Table 3.1. List of Higher Education Program components disciplines that contribute to expected learning outcomes

Competence code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)
UK-1	The ability to carry out a critical analysis of problem situations based on a systematic approach, to develop a strategy of action.	History Philosophy Life safety Obstetrics, gynecology and andrology Internal diseases General surgery Private Veterinary Surgery Parasitology and invasive diseases Epizootology and infectious diseases	Reconstructive surgery

		Veterinary and sanitary examination Organization of veterinary affairs Maths Fundamentals of Economics and Management Veterinary deontology The basics of intellectual work Zoopsychology Organization of state veterinary supervision Career management	
UC-2	The ability to manage a project at all stages of its life cycle.	Philosophy Organization of veterinary affairs Maths Introduction to the specialty Fundamentals of Economics and Management Veterinary deontology Economics and organization of agricultural production The basics of intellectual work Personality psychology and professional self-determination Veterinary and industrial laboratories with design basics Career management	-
UC-12	The ability to search for the necessary sources of information and data, to perceive, analyze, memorize and transmit	Law science Computer science Philosophy Life safety	-

	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; to evaluate information, its reliability, build logical conclusions based on incoming information and data.	Instrumental diagnostic methods Organization of veterinary affairs Forensic veterinary examination and dissection of animals Maths Veterinary deontology Medicinal and poisonous plants The basics of intellectual work Personality psychology and professional self-determination Clinical laboratory diagnostics Laboratory diagnostics of infectious and invasive diseases Organization of state veterinary supervision Veterinary and industrial laboratories with design basics Biometrics in veterinary medicine Basics of social and legal knowledge	

4. COURSE WORKLOAD AND TRAINING ACTIVITIES

Course workload of the discipline "**Space technologies at the service of the agro-industrial complex**" is 2 credits.

*Table 4.1. Types of academic activities during the period of the HE program mastering for **full-time** study*

Types of academic activities	**HOURS**	**Semesters**			
		9	-	-	-
Contact academic hours	36	36	-	-	-

including						
Lectures		-	-	-	-	-
Lab work		36	36	-	-	-
Seminars (workshops/tutorials)		-	-	-	-	-
Self-study		28	28	-	-	-
Evaluation and assessment (exam/pass/fail grading)		8	8	-	-	-
Course workload	Academic hour	**72**	**72**	-	-	-
	Credit unit	**2**	**2**	-	-	-

*Table 4.2. Types of academic activities during the period of the HE program mastering for **part-time** study*

Types of academic activities		**HOURS**	**Semesters**			
			9	-	-	-
Contact academic hours		18	18	-	-	-
including						
Lectures		-	-	-	-	-
Lab work		18	18	-	-	-
Seminars (workshops/tutorials)		-	-	-	-	-
Self-study		48	48	-	-	-
Evaluation and assessment (exam/pass/fail grading)		6	6	-	-	-
Course workload	Academic hour	**72**	**72**	-	-	-
	Credit unit	**2**	**2**	-	-	-

5. CONTENT OF THE DISCIPLINE

Table 5.1 Content of the discipline (module) by type of academic work

Name of the discipline section	**Content of the section (topics)**	**Types of academic activities**
Section 1. The device of space and the Earth.	Topic 1.1. Space missions to explore the Solar System - challenges and opportunities.	Lab work
	Topic 1.2. Implemented and planned projects for the study of the Solar System.	Lab work
	Topic 1.3. Space missions for the exploration of the Sun - tasks, features and limitations.	Lab work

	Topic 1.4. Orbital missions for the exploration of distant space.	Lab work
Section 2. Space technology.	Topic 2.1. Technique, apparatus and various devices used in outer space.	Lab work
	Topic 2.2. Areas of activity on Earth that rely on data from spacecraft and devices.	Lab work
	Topic 2.3. Space technology used in the agro-industrial complex.	Lab work

6. CLASSROOM INFRASTRUCTURE AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Material and technical support of the discipline

Classroom for Academic Activity Type	***Equipping the classroom***	**Specialized educational/laboratory equipment, software and materials for the development of the discipline** (if necessary)
Laboratory	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment.	-
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to an electronic information and educational environment.	-

7. RECOMMENDED SOURCES FOR COURSE STUDIES

Main reading:

1. Lysochenko A.A. Strategic and logistic management in the agro-industrial complex as a factor in ensuring food security in the region 2016.-176s
2. Lebedev V.V., Gansvind I.N. Design of space monitoring systems 2010.- 392s

Additional Reading:

1. Tushkanov M.P., Guryanova N.M., Vinnichek L.B .: Organization of production and entrepreneurship in the agro-industrial complex 2019.-270c

Resources of the Internet information and telecommunication network:

1. Electronic library system of RUDN and third-party Electronic library systems to which university students have access on the basis of concluded contracts:
- Electronic library system of RUDN - ELS RUDN http://lib.rudn.ru/MegaPro/Web
- ELS "University Library online"http://www.biblioclub.ru
- ELS Yurayt http://www.biblio-online.ru
- ELS "Student Consultant"www.studentlibrary.ru
- ELS "Lan"http://eZlanbook.com/
- ELS "Trinity Bridge"http://www.trmost.com/

2. Databases and search engines:
- electronic fund of legal and regulatory and technical documentation http://docs.cntd.ru/
- search engine Yandex https://www.yandex.ru/
- search engine Google https://www.google.ru/
- abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

Educational and methodological materials for independent work of students during the development of the discipline/ module*:

1. A course of lectures on the discipline "**Space technologies at the service of the agro-industrial complex**".
2. Laboratory workshop on the discipline "**Space technologies at the service of the agro-industrial complex**".

* - All educational and methodological materials for independent work of students are placed in accordance with the current procedure on the discipline page in the **Telecommunication educational and Information System!**

8. MID-TERM ASSESSMENT

Evaluation materials and a point-rating system* for assessing the level of competence formation (part of competencies) based on the results of mastering the discipline "**Space technologies at the service of the agro-industrial complex**" are presented in the Appendix to this Work Program of the discipline.

* - Assessment Materials and a Point Rating System are formed based on the requirements of the relevant local regulatory act of the RUDN.

DEVELOPER:

Professor of Department of Mechanics and Control Processes		Razumny Yu.N.
Position, Basic curriculum	Signature	Full name.

HEAD OF THE DEPARTMENT:

Department of Veterinary Medicine		Vatnikov Yu.A.
Name Basic Curriculum	Signature	Full name.

HEAD OF THE HIGHER EDUCATION PROGRAM:

Director of the Department of Veterinary Medicine		Vatnikov Yu.A.
Position, Basic curriculum	Signature	Full name