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ФИО: Ястребов Олег Александрович
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Federal State Autonomous Educational Institution of Higher Education
PEOPLES FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE
LUMUMBA

Institute of Environmental Engineering

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

COURSE SYLLABUS

Regional geocology and urban geocology

course title

Recommended by the Didactic Council for the Education Field of:

08.04.01 Construction
05.04.06.Ecology and environmental Management

field of studies / speciality code and title

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

Environmental Engineering in Construction

higher education programme profile/specialisation title

2023 г.

1. OBJECTIVE OF THE DISCIPLINE

The purpose of the discipline is to form students' readiness to use theoretical knowledge and practical skills in the field of regional geoecological assessment of territories and assessment of possible negative impacts of various objects and factors on environmental components for the implementation of professional scientifically based research activities in the field of ecology and nature management.

Objectives of the discipline: mastering the knowledge, skills and abilities of conducting a comprehensive assessment of the geoecological regional components of the territory for the purpose of rational nature management and ensuring sustainable development of territories.

2. REQUIREMENTS FOR THE RESULTS OF DISCIPLINE MASTERING

Mastering the discipline "Regional geoecology and urban geoecology" is aimed at developing the following competencies (parts of competencies):

Table 2.1. The list of competencies acquired by the students during the mastery of the discipline (the results of the mastery of the discipline)

Code	Competencies	Competence achievement indicators (within this discipline)
ОПК-2-э	Able to use special and new sections of ecology, geoecology and nature management in solving research and applied tasks of professional activity.	ОПК-2.1-эHas a systematic understanding of the theoretical and methodological foundations of environmental regulation
		ОПК-2.2-эKnows basic knowledge of fundamental sections of biology to the extent necessary for mastering the basics in ecology and nature management
		ОПК-2.3-эPossesses modern methods of obtaining and evaluating geochemical information for solving theoretical and practical problems of natural environment geochemistry in the field of ecology and nature management in order to protect the environment
ПК-2	Able to diagnose environmental protection problems, develop standard environmental protection measures and practical recommendations for ensuring sustainable development and assess the impact of planned structures or other forms of economic activity on the environment	ПК-2.1 Able to predict possible adverse changes in the natural and man-made environment, to conduct a preliminary analysis of the consequences of the information obtained during the study
		ПК-2.2 Able to analyze environmental monitoring data, make preliminary conclusions about the state of the facility and the environment
		ПК-2.3 Able to assess the environmental impact of the projected enterprise and structures, predict and evaluate negative consequences
ПК-3	Able to carry out and organize scientific research of industrial and civil construction facilities, including in the field of environmental management	ПК-3.1 Able to study the natural, technogenic, socio-economic, demographic and biomedical situation, to search for cultural heritage objects in the study area, to explore industrial and civil construction facilities
		ПК-3.2Has the skills to carry out studies of environmental objects, including industrial and civil construction, on chemical, microbiological,

Code	Competencies	Competence achievement indicators (within this discipline)
		parasitological, toxicological indicators
		ПІК-3.3 Able to collect and analyze information about the natural and man-made environment, physical, geographical and climatic conditions, including in industrial and civil construction, based on materials from previous years
ОПІК 5с	Able to conduct and organize design and survey work in the field of construction and housing and communal services, carry out technical expertise of projects and supervision of their compliance	ОПІК-5с.1 Able to carry out planning and organization of design and survey work in the field of construction and housing and communal services
		ОПІК-5с.2 Able to carry out design and survey activities and audit, as well as to carry out technical expertise of projects and supervision of their compliance in the field of construction and housing and communal services
		ОПІК-5с.3 Has the skills to develop project documentation when planning engineering and construction surveys

3. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF EP HE:

The course "Regional geocology and urban geocology" refers to the part formed by the participants of the educational relations of the block B1.

As part of the EP HE, students also master other disciplines and / or practices that contribute to the achievement of the planned results of mastering the discipline "Regional geocology and urban geocology".

Table 3.1. The list of the components of the educational program that contribute to the achievement of the planned results of mastering the discipline

Code	Name of the competence	Previous disciplines/modules, practices*	Subsequent disciplines/modules, practices*
ОПІК 2с	Able to use special and new sections of ecology, geocology and nature management in solving research and applied tasks of professional activity	Environmental rationing Ecology and geochemistry of urban landscapes	
ПІК 2	Able to apply environmental research methods to solve research and applied tasks of professional activity	Environmental control and monitoring of urban environment Ecology and geochemistry of urban	

Code	Name of the competence	Previous disciplines/modules, practices*	Subsequent disciplines/modules, practices*
		landscapes	
ИК 3	Has the skills to prepare thematic maps and plans, analytical information on engineering and environmental surveys	Urban development and environmental engineering surveys	
ОПК 5c	Able to determine the structure and knows the methods of zoning the assessed territory by types of anthropogenic load and environmental components		

* - filled in in accordance with the matrix of competencies

4. SCOPE OF DISCIPLINE AND TYPES OF EDUCATIONAL WORK

The total labor intensity of the discipline "Regional geocology and urban geocology" is 3 credit.

Table 4.1. Types of educational work by periods of mastering the EP HE for FULL-time education

Type of educational work	TOTAL, ac.h.	Semester(s)			
		1	2	3	4
Contact work, ac.h.	34			34	
including:					
Lectures (L)	17			17	
Laboratory work (LW)					
Practical/seminar classes (SC)	17			17	
Independent work of students, ac.h.	49			49	
Control (exam / test with assessment), ac.h.	25			25	
Total labor intensity of the discipline	ac.h.	108		108	
	credit	3		3	

*Table 4.2. Types of educational work by periods of mastering the EP HE for CORRESPONDENCE forms education**

Type of educational work	TOTAL,	Semester(s)
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	ac.h.	1	2	3	4
Contact work, ac.h.	8			8	
including:					
Lectures (L)	4			4	
Laboratory work (LW)					
Practical/seminar classes (SC)	4			4	
Independent work of students, ac.h.	91			91	
Control (exam / test with assessment), ac.h.	9			9	
Total labor intensity of the discipline	ac.h.	108		108	
	credit	3		3	

* - filled in in case of implementation of the program in correspondence forms education

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)	Type of educational work*
Topic 1. Introduction and general provisions of geocological assessment	<i>The subject and field of research of regional geoecology. Regional conditions. An integrated approach to the assessment of geocological conditions.</i>	(L, LW)
Topic 2. Geocological conditions of territories and factors of their formation.	<i>Climatic, soil-plant, orohydrographic, geological factors. Their role in the formation of geocological conditions.</i>	(L, LW)
Topic 3. Lithogenetic foundations of regional ecology.	<i>Engineering-geological approach as the basis of regional geoecological assessment of the territory. Engineering and geological features of the territory of Russia. Characteristics of the shields of ancient and young platforms. Plates of ancient and young platforms. Folded areas and areas of Alpine orogeny. Areas of the shelf and sea coasts. Changes in the geological environment of various territories and its resistance to technogenic impacts.</i>	(L, LW)

Topic 4. Geocological zonation of the territory	<i>The basic principles of typing conditions. Allocation of regions of different order, regions and districts. Geocological maps.</i>	(L, LW)
Topic 5. Urban Geocology, as part of regional geocology	<i>The foundations of urban structures. Methods of changing the properties of soil bases. Hydrogeology and hydrology of cities. Problems of water supply and wastewater in cities. Underground workings in cities. Urban soils. Construction and operation of the subway in various conditions. Geological processes and phenomena in cities. Monitoring of the natural urban environment. Recreational areas.</i>	(L, LW)

* - filled in only for full-time education: L - lectures; LW - laboratory work; S - seminars.

6. MATERIAL AND TECHNICAL SUPPORT OF THE DISCIPLINE

Table 6.1. Material and technical support of discipline

Classroomtype	Classroomequipment	Specialized educational/laboratory equipment and materials for the discipline/module realization
Lecturehall	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a board (screen) and technical means of multimedia presentations.	
Laboratory	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment.	
Seminars hall	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and interim certification, equipped with a set of specialized furniture and multimedia presentation equipment.	
Computer classroom	A computer classroom for conducting classes, group and individual consultations, ongoing monitoring and interim certification, equipped with personal computers (in the amount of ___pcs.), a blackboard (screen) and multimedia presentation technical means.	
For independent work of students	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 EIOS	

* - the audience for independent work of students must be specified

7. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE

Mandatory literature:

1. Г.Н. Голубев. Основы геоэкологии : учебник / Г.Н. Голубев. — 2-е изд., стер. — М. :

КНОРУС, 2016. — 352 с.

Режим доступа: <https://ecokub.ru/load/987-osnovy-geoekologii-uchebnik-golubev-g-n-2016-g.html>

2. Романова Э.П. Глобальные геоэкологические проблемы: учеб. пособие для бакалавриата и магистратуры / Э.П. Романова. – Москва: Издательство Юрайт, 2019. – 182 с. – (Серия: Бакалавр и магистр. Академический курс)

Additionalliterature:

1. Сладкопечев С.А. Геоэкологическая оценка территорий //Учебное пособие. – М.: издательство МИИГиК, 2011. – 130 с.
2. Инженерная геология России. Том 2. Инженерная геодинамика территории России. М.: Изд.-во КДУ. 2013г.
3. Карлович Игорь Анатольевич. Геоэкология [Текст] : Монография: Учебник для вузов / И. А. Карлович. - М. : Альма Матер : Академический проект, 2005. - 512 с. : ил. - (Учебник для высшей школы)
4. Будыко М.И. Климат в прошлом и будущем. Л.: Гидрометеиздат, 1981. 350 с.
5. Периодический журнал «Региональные проблемы экологии». М.: Изд-во «Камертон»
6. Периодический журнал «Геоэкология, Инженерная геология Гидрогеология и Геокриология». М.: Изд-во «Наука»

Resources of the information and telecommunications network "Internet":

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/>
- EL "Trinity Bridge"

2. Databases and search engines:

electronic foundation of legal and normative-technical documentation
<http://docs.cntd.ru/>

- Yandex search engine [https:// www .yandex.ru/](https://www.yandex.ru/)
- Google search engine <https://www.google.ru/>
- Scopus abstract database <http://www.elsevierscience.ru/products/scopus/>

б) базы данных, информационно-справочные и поисковые системы
<http://lib.rudn.ru/>

Научная электронная библиотека ГПНТБ России <http://ellib.gpntb.ru/>

Научная библиотека им. М.Горького Санкт-Петербургского государственного университета
<http://www.lib.pu.ru/>

Сайт «Природные ресурсы». www.priroda.ru
 Сайт Государственного комитета Российской Федерации по охране окружающей среды.
www.econom.ru
 Энциклопедия Кругосвет. - [Электронный ресурс]. – 2008.- Режим доступа:
<http://www.krugosvet.ru/articles/20/1002069/1002069a9.htm>
 Материалы американского Общества минеральных и геотехнологических исследований в скважинах MGLS (Mineral and Geotechnical Logging Society). Статьи и труды симпозиумов, начиная с 1993г.: <http://ladmac.lanl.gov./mgls/mgls.html>.
 Физика Земли, науки о Земле. Материалы научного издательства Elsevier Science (Англия):
<http://www.elsevier.nl/locate/ContentsDirect>.
 World eBook Library
 Global eJournal Library
<http://www.rusrec.ru/ru/taxonomy/term/7>
<http://www.igras.ru/>
<http://eco-plan.ru/>
http://igu.igras.ru/site_map.html
<http://www.wwf.ru/resources/publ/book/434>
<http://www.rgo.ru/http://rgo.msk.ru/>
<http://meteoinfo.ru>
 Труды Гидрометеорологического научно-исследовательского центра Российской Федерации (Труды Гидрометцентра России) <http://method.meteorf.ru>

8. EVALUATION MATERIALS AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCES IN THE DISCIPLINE

Evaluation materials and a score-rating system* for assessing the level of competence formation (part of competencies) based on the results of mastering the discipline "Regional geocology and urban geocology" are presented in the Appendix to this Work Program of the discipline.

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

Developers:

Associate Professor of the

Department of environmental
management



Stanislav V.

position, educational department

signature

name and surname.

HEAD OF EDUCATIONAL DEPARTMENT:

Director of the Department
of Environmental Management



Kucher D.E.

educational department

signature

name and surname.

HEAD OF HIGHER EDUCATION PROGRAMME:

Director of the Department
of Environmental Management



Kucher D.E.

position, educational department

signature

name and surname