Federal State Autonomous Educational Institution for Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE LUMUMBA
(RUDN University)

Institute of Environmental Engineering

COURSE SYLLABUS

Climate Project Development

Recommended by the Didactic Council for the Education Field of:

05.04.06 "Ecology and Nature Management"

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

Climate Projects Management

2025

1. COURSE GOAL(s)

The course is designed to help students to obtain the complex theoretical and applied knowledge in the basics of climate project management, formation of knowledge about methods of structuring and management of climate projects, development of skills in using modern climate project management tools, formation of skills for the preparation of justification and development of a climate project plan.

2. REQUIREMENTS FOR LEARNING OUTCOMES

The process of studying the discipline is aimed at the formation of the following competencies:

Competence code	Competence descriptor	Competence formation indicators
GC-1	Able to carry out a problem situations critical analysis based on a systematic approach, able to develop an action strategy	**GC-1.1** can analyze the problem situation as a system, identifying its components and the links between them
		GC-1.2 owns argumentation and develops a meaningful strategy for solving a problem situation based on a systematic and interdisciplinary approach
		GC-1.3 knows the basic strategies and identifies possible risks, suggesting ways to eliminate them
PC-4	Able to conduct environmental analysis of projects for expansion, reconstruction, modernization of existing production facilities, taking into account the requirements of the greenhouse gas management standards	**PC-4.1** able to carry out calculations of greenhouse gas absorption/emissions and predict their changes depending on the selected technologies
		PC-4.2 able to develop the climate projects
		PC-4.3 has skills in preparing project documentation (defining a baseline, monitoring plan), as well as documentation for projects validation and verification

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

Course ***Carbon Cycles*** refers to the **University Disciplines Module** block 1 of the curriculum.

Within the higher education programme students also master other disciplines (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course.

Table 3.1

The list of the higher education programme components that contribute to the achievement of the expected learning outcomes

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
GC-1	Able to carry out a problem situations critical analysis based on a systematic approach, able to develop an action strategy	IT in Ecology and Natural Resources Management	Carbon Test Areas and GHG Monitoring
PC-4	Able to conduct environmental analysis of projects for expansion, reconstruction, modernization of existing production facilities,	Carbon Cycles, Climate Change Models,	Carbon Test Areas and GHG Monitoring, Climate Neutrality and Waste Management,

	taking into account the requirements of the greenhouse gas management standards	International Standards for GHG Management, Industrial Internship,	Research Work (R&D) (obtaining primary skills of research work), Pre-graduate Internship

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the Course is **4** credit units.

Table 4.1. Types of academic activities during the period of the HE program(me) mastering

Types of academic activities		**Total hours**	**Semester(s)**			
			1	**2**	**3**	**4**
Contact academic hours		*34*			*34*	
Lectures		17			17	
Lab works						
Seminars (workshops/tutorials)		17			17	
Self-study		*83*			*83*	
Evaluation and assessment (exam; pass/fail grading)		*27*			*27*	
The total course workload	**144**	**144**			**144**	
	4	**4**			**4**	

5. COURSE CONTENTS

Table 5.1. The content of the discipline (module) by type of educational work

Title of Course Modules	**Content**	**Types of academic activities**
Module 1 Introduction to climate projects	Topic 1.1 The concept of climate projects	L, S
	Topic 1.2 Goals and objectives of climate projects	L, S
	Topic 1.3 Main stages of development and implementation of climate projects	L, S
Module 2 Analysis and assessment of climate risks	Topic 2.1 Identification of climate risks	L, S
	Topic 2.2 Methods of assessing climate risks	L, S
	Topic 2.3 Analysis of the sensitivity of the project to climate change	L, S
Module 3 Development of adaptation strategies and mitigation of climate impacts	Topic 3.1 Strategies for adaptation to climate change	L, S
	Topic 3.2 Reducing climate impacts	L, S
	Topic 3.3 Choosing optimal solutions to minimize climate risks	L, S
Module 4 Climate project management	Topic 4.1 Planning and organization of climate projects	L, S
	Topic 4.2 Monitoring and control of the implementation of climate projects	L, S
	Topic 4.3 Assessment of the effectiveness and results of climate projects	L, S

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Classroom for Academic Activity Type	**Classroom equipment**	**Specialized educational / laboratory equipment, software and materials for mastering the course (if necessary)**
Lecture	Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless	Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release), Skype. Microsoft Windows 7 corporate. License No. 5190227, date of issue March 16, 2010 MS Office 2007 Prof , License # 6842818, date of issue 09/07/2009
Seminars	Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless	
For Self-Study	Classroom for self-study (can be used for seminars and consultations), equipped with a set of devices includes laptop, stable wireless.	No

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main reading:

1. Goosse H., P.Y. Barriat, W. Lefebvre, M.F. Loutre and V. Zunz, (2008-2010). Introduction to climate dynamics and climate modeling. Online textbook available at http://www.climate.be/textbook.

Additional reading:

1. Methodology climate projects. http://www.igce.ru/performance/издательская-деятельность/methodology_of_climate_projects

2. ISO 14064-2 Greenhouse gases — Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.

Internet-based sources

1. ELS of RUDN University and third-party ELS, to which university students have access on the basis of concluded agreements:

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

- EBS "Trinity Bridge"

2. Databases and search engines:

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

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL UPON COURSE COMPLETION

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

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Senior lecturer of the ES&PQM Department		**Khitev Yu. P.**
Position	Signature	Name, Surname

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Institute of Environmental Engineering

ASSESSMENT TOOLKIT

Climate Project Development

Recommended by the Didactic Council for the Education Field of:
05.04.06 "Ecology and nature management"

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Passport to Assessment Toolkit for Course Climate Project Development

Education Field / Speciality 05.04.06 "Ecology and nature management"/ «Climate Project Management»
Course: Climate Project Development

Competences (competences in part) under assessment	Course module under assessment	Course topic under assessment	Tools to assess higher education programme mastering level										Points for topic	Points for course
			Class work					Self-studies				Exam/Pass-fail assessment		
			Quiz	Test	Work with lecture materials	Work at the seminars	Lab work	Homework	Research essay/ Library research paper	Calculation and graphic work	Group work project			
GC-1 PC-4	Module 1 Introduction to climate projects	Topic 1.1 The concept of climate projects		18	1			15				14	1	5
		Topic 1.2 Goals and objectives of climate projects			2								2	
		Topic 1.3 Main stages of development and implementation of climate projects			2								2	
GC-1 PC-4		Topic 2.1 Identification of climate risks			1								1	5

	Module 2 Analysis and assessment of climate risks	Topic 2.2 Methods of assessing climate risks			2								2	
		Topic 2.3 Analysis of the sensitivity of the project to climate change			2								2	
GC-1 PC-4	Module 3 Development of adaptation strategies and mitigation of climate impacts	Topic 3.1 Strategies for adaptation to climate change			2								2	
		Topic 3.2 Reducing climate impacts			1								1	5
		Topic 3.3 Choosing optimal solutions to minimize climate risks			2								2	
GC-1 PC-4	Module 4 Climate project management	Topic 4.1 Planning and organization of climate projects			1								1	
		Topic 4.2 Monitoring and control of the implementation of climate projects			2								2	5
		Topic 4.3 Assessment of the effectiveness and results of climate projects			2								2	
		TOTAL		**36**	**20**			**30**				**14**		**100**

Course Climate Project Development

QUESTION CARD No 1

QUESTION 1. Principles and approaches to the development of climate projects.
QUESTION 2. Assessment and consideration of climate risks in investment projects.
3 * …….

Developer_____(Khitev Yurii)
signature

Head of Educational Department_____(Savenkova Elena)
signature

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day, month, year

Note * Practice case/task inclusion is subject to the teacher's discretion.

The set of exam question cards is complemented by the assessment criteria developed by the teacher and approved at the department meeting.

Assessment criteria:
(*in compliance with the legal regulations in force*)

EXAM QUESTIONS

1. The concept and objectives of the development of climate projects.
2. Principles and approaches to the development of climate projects.
3. Stages of development of climate projects.
4. Collection and analysis of initial data for the development of climate projects.
5. Identification of climate risks and vulnerabilities.
6. Selection of methods and tools for assessing climate impacts.
7. Assessment of the economic and social consequences of climate change.
8. Development of strategies for adaptation to climate change.
9. Measures to reduce climate impacts and improve energy efficiency.
10. Integration of climate projects into strategic development plans and programs.
11. Climate risk management and adaptation to climate change.
12. Assessment of the effectiveness and efficiency of climate projects.
13. Monitoring and control of the implementation of climate projects.
14. Interaction with stakeholders and the public.
15. International standards and recommendations for the development of climate projects.
16. Experience and best practices in the development and implementation of climate projects.
17. The role of government agencies and organizations in supporting and financing climate projects.
18. Participation of the private sector and non-governmental organizations in the development and implementation of climate projects.
19. Educational and information programs on the development and implementation of climate projects.
20. The role of scientific research and innovation in the development of technologies for climate projects.
21. International cooperation and exchange of experience in the field of development and implementation of climate projects.
22. Assessment and consideration of climate risks in investment projects.
23. Development and implementation of programs to improve energy efficiency and the use of renewable energy sources.

24. Creation and implementation of climate risk monitoring and management systems.
25. Development and implementation of training and advanced training programs for specialists in the field of climate projects.
26. Development and support of small and medium-sized businesses in the field of development and implementation of climate projects.
27. Development and implementation of programs to support and stimulate the introduction of innovative technologies for climate projects.
28. Creation and development of infrastructure for the implementation of climate projects.
29. Development and implementation of programs for international cooperation and exchange of experience in the field of development and implementation of climate projects.
30. Assessment and consideration of climate risks in the management decision-making process.

Tentative list of assessment tools

No	Assessment tool	Brief features	Assessment tool representation in the kit
		Class work	
1	Survey/Quiz	A tool of control, organised as a special conversation between a teacher and students on topics related to the course under study, and designed to clarify the amount of students' knowledge in a particular section, topic, problem, etc.	Questions on the course topics /modules
2	Test	A system of standardised tasks that allows the teacher to automate the procedure for measuring the student's level of knowledge and skills	Tests bank
3	Control work	A tool of control organised as a classroom lesson, at which students need to independently demonstrate the acquisition and mastering of the educational material of the course topic, section, or sections.	Questions on the course topics /modules
4	Round table, discussion, polemic, dispute, debate, (class work)	Evaluation tools that allow the teacher to engage students in the process of discussing controversial issues, problems and assess their ability to argue their own point of view.	List of themes for round tables, discussions, polemics, disputes, debates.
5	Business game and/or role play	Joint activities of a student group under the teacher's control to solve educational and professionally oriented tasks through the simulation of a real-world problem; this activity allows the teacher to assess the students' ability to analyse and solve typical professional challenges.	Topic (problem), concept, roles and expected results for each game
6.	Presentation (defence) of project/report/ Library research paper /briefs *	A tool for monitoring the students' ability to present the work results to the audience.	Themes for projects/reports/ Library research paper/ briefs
7	Pass/Fail assessment	A tool for checking the quality of students' performance of laboratory work, acquisition and mastering of the practice training and seminar educational material, successful completion of the advanced field internship and pre-graduate internship and fulfillment of all training assignments in the course of these internships in accordance with the approved programme.	Tasks examples
8	Exam	The evaluation of the student's work during the semester (year, the entire period of study, etc.); it is designed to identify the level, soundness and systematic nature of theoretical and practical knowledge gained by the student, formation of independent work skills, development of creative	Examples of tasks/questions/exam question cards

		thinking, ability to synthesise the acquired knowledge and apply it to solve practice tasks.	
9	Case	A problem-solving task in which the student is asked to comprehend the real work-related (occupational) situation necessary to solve the problem.	Assignments to solve the case
10	Multi-level tasks and assignments with varying difficulty	The tasks and assignments differ in terms of the following levels: a) reproductive level allows the teacher to evaluate and diagnose the students' knowledge of factual material (basic concepts, algorithms, facts) and the students' ability to correctly use special terms and concepts, recognize objects of study within a certain section of the discipline, b) reconstructive level allows the teacher to evaluate and diagnose the students' abilities to synthesise, analyse, generalise factual and theoretical material and formulate specific conclusions, establish cause-and-effect relationships, c) creative level allows to evaluate and diagnose students' skills to integrate knowledge of various fields, argue their own point of view.	Set of multi-level tasks and assignments with varying difficulty
Self- studies			
1	Calculation and graphic work	A tool for checking students' skills in applying the acquired knowledge according to a predetermined methodology in task solving or fulfilling assignments for a module or discipline as a whole.	Set of tasks for calculation and graphic work
2	Course work/project	A type of independent written work aimed at the creative development of general professional and specialised professional disciplines (modules) and the development of relevant professional competences	Course assignment themes
3	Project	The final "product" that results from planning and performance of educational and research tasks set; it allows the teacher to assess the students' ability to independently shape their knowledge in the course of solving practice tasks and problems, navigate in the information environment and the students' level of analytical, research skills, skills of practical and creative thinking; it can be implemented individually or by a group of students.	Themes for team-based or individual projects
4	Reports, briefs	The product of the student's independent work, which is a public performance on the presentation of the results of solving a specific educational, practical, research or scientific topic.	Themes for reports, briefs
5	Standard calculations	A tool to test skills in applying the acquired knowledge, according to a predetermined methodology, solving tasks or fulfilling	Set of tasks for standard calculations

		assignments for a module or discipline as a whole.	
6	Homework	The tasks and assignments differ in terms of the following levels: a) reproductive level allows the teacher to evaluate and diagnose the students' knowledge of factual material (basic concepts, algorithms, facts) and the students' ability to correctly use special terms and concepts, recognize objects of study within a certain section of the discipline, b) reconstructive level allows the teacher to evaluate and diagnose the students' abilities to synthesise, analyse, generalise factual and theoretical material and formulate specific conclusions, establish cause-and-effect relationships, c) creative level allows the teacher to evaluate and diagnose students' skills to integrate knowledge of various fields, argue their own point of view.	Set of multi-level tasks and assignments with varying difficulty

Department of Environmental Safety and Product Quality Management

Set of assignments for control work

for the course Climate Project Development

What is the main goal of developing climate projects?
a) Reducing greenhouse gas emissions.
b) Increased absorption of greenhouse gases.
c) Ensuring sustainable development.
d) All of the above.

What activities can be included in the climate project?
a) Reforestation.
b) Improvement of forestry management.
c) Protection of forests from fires.
d) All of the above activities.

Who is validating the climate project?
a) A legal entity or an individual entrepreneur with accreditation in the national system.
b) The Ministry of Natural Resources.
c) The Federal Service for Supervision of Environmental Management.
d) All of the above organizations.

What are the requirements for the site where the climate project is being implemented?
a) The site must be owned by the contractor of the project.
b) The plot must be leased from the copyright holder.
c) The rights to use the site must be transferred under an agreement with the copyright holder.
d) All of the above requirements.

What regulatory documents regulate the development and implementation of climate projects in Russia?
a) Federal Law No. 296-FZ dated 07/22/2021 "On Limiting Greenhouse Gas Emissions".
b) Decree of the Government of the Russian Federation dated 03/24/2022 No. 455 "On Approval of the Rules for Verifying the Results of Climate Projects".
c) Order of the Ministry of Economic Development of the Russian Federation dated 05/11/2022 No. 248 "On Approval of criteria and Procedure for Classifying projects as climate projects".
d) Order of the Ministry of Natural Resources of the Russian Federation dated 05/27/2022 No. 371 "On Approval of methods for quantifying greenhouse Gas emissions and greenhouse Gas Uptake".

Assessment criteria:
(in compliance with the legal regulations in force)

Developer _____ (Yurii Khitev)
signature

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day, month, year

Department of Environmental Safety and Product Quality Management

Business game

for the course Climate Project Development

1 Theme (problem): develop a climate project for the selected company

2 Game conception: to study possible variants of climate projects, to determine their pros and cons. Choose the best option.

3 Roles:
- developer of the climate project;
- government;
- society
- bodies performing validation and verification of environmental information statements

4 Expected outcomes:
Business game helps students to obtain deep understanding of:

- study of possible options for climate projects;
- study of the rules for processing documents for a climate project;
- assessment of the economic component of a climate project/

Assessment criteria:
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Department of Environmental Safety and Product Quality Management

Team-based or individual creative assignments/projects

for the course Climate Project Development

Topic: Development and implementation of a climate project to reduce greenhouse gas emissions in the region.

The purpose of the assignment: to develop and present a climate project aimed at reducing greenhouse gas emissions in the region, taking into account environmental, economic and social aspects.

Algorithm

1. To study existing climate projects and the experience of their implementation in other regions.
2. Identify the main sources of greenhouse gas emissions in your region and their impact on the environment.
3. Develop a strategy to reduce greenhouse gas emissions, including measures to improve energy efficiency, use renewable energy sources and reforestation.
4. To assess the economic effectiveness of the proposed measures and possible social consequences.
5. Draw up a plan for the implementation of the climate project, including stages, deadlines and responsible persons.
6. Present the results of your work in the form of a presentation or report containing a description of the project, its goals, objectives and expected results.

Task defense form – Power Point presentation of the report.

Assessment criteria:
(in compliance with the legal regulations in force)

Developer _____ (Yurii Khitev)
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_____
day, month, year

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