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

Institute of Environmental Engineering

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

COURSE SYLLABUS

PROJECT MANAGEMENT

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

2024 г.

1. OBJECTIVE OF THE DISCIPLINE

The purpose of mastering the discipline "Project Management" is to gain knowledge in the field of project management sufficient for independent subsequent development of this subject area in the course of practical activity.

2. REQUIREMENTS FOR THE RESULTS OF DISCIPLINE MASTERING

Mastering the discipline "Project management" 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)
PC 1	Can carry out an expert examination of design solutions for industrial and civil construction facilities, including in the field of environmental management	PC 1.1 Capable of carrying out environmental protection measures to maintain environmental safety and rational use of natural resources
		PC 1.2 Capable of carrying out an examination of the results of engineering surveys of industrial and civil construction facilities
GPC-4-э	Able to apply regulatory legal acts and norms of professional ethics in the field of ecology and nature management.	GPC-4.1-э Focuses on the modern system of regulatory and legal support for engineering and environmental surveys and environmental impact assessment of urban agglomerations.
		GPC-4.2-э Knows the international practice of development and harmonization, as well as the application of environmental standards.
		GPC-4.3-э Has the skills to analyze the need for environmental protection measures based on the application of environmental standards, the skills to select and apply indicators for environmental expertise and forms of environmental control based on environmental standards.
PC 3	Able to carry out and organize scientific research of objects of industrial and civil construction, incl. in the field of environmental management	PC 3.1 Able to study the natural, technogenic, socio-economic, demographic and biomedical situation, search for cultural heritage objects in the study area, explore industrial and civil construction projects
		PC 3.2 Possesses the skills to perform studies of environmental objects, incl. industrial and civil construction, according to chemical, microbiological, parasitological, toxicological indicators
		PC 3.3 Able to collect and analyze information about the natural and man-made environment, physical,

Code	Competencies	Competence achievement indicators (within this discipline)
		geographical and climatic conditions, incl. in industrial and civil construction, based on materials from past years
PC 4	Able to develop design solutions and measures to ensure the safety of industrial and civil construction projects	PC 4.1 Able to develop design solutions and measures to ensure the safety of industrial and civil construction projects
		PC 4.2 Possesses the skills of environmental design and preparation of special documentation at the pre-project stage of the project life cycle
		PC 4.3 Able to carry out the necessary calculations for planning, modeling and forecasting the development of a territorial object
GPC-3э	Able to apply environmental research methods to solve research and applied problems of professional activity	GPC-3э.1 Knows how to identify and has the skills to solve problems, tasks of scientific research in the field of urban geography, environmental problems of cities
		GPC-3э.2 Owns modern methods for assessing geocological information to solve theoretical and practical problems of nature management
		GPC-3э.3 Possesses the skills of predicting meteoroproc reactions, assessing the climatic potential of regions, assessing the objectivity of climate change scenarios
GPC-6э	Able to design, represent, protect and disseminate the results of their professional activities, including research	GPC-6э.1 Able to use information resources, scientific, experimental and instrumental bases on the subject of ongoing research
		GPC-6э.2 Able to formulate the results obtained in the course of solving research problems
		GPC-6э.3 Able to identify scientific (scientific and technical) results of practical importance

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

The course "Project management" refers to the part formed by the participants of the educational relations of the block Б1.О.02.04

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 "Project Management".

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*
PC-1	Able to conduct an examination of design solutions for industrial and civil construction projects, incl. and in the field of rational nature management	Organization and management in construction	Life cycle analysis of construction object
PC-3	Able to carry out and organize scientific research of objects of industrial and civil construction, incl. in the field of environmental management	Theoretical foundations and design methods of pipeline systems for water supply and sanitation, Fundamentals of scientific research	Urban development and environmental engineering surveys, Regional geocology and urban geocology
PC-4	Able to develop design solutions and measures to ensure the safety of industrial and civil construction projects	Theoretical foundations and design methods of pipeline systems for water supply and sanitation	Environmental rationing
GPC-3э	Able to apply environmental research methods to solve research and applied problems of professional activity.	Urban water management and climate change adaptation	Urban development and environmental engineering surveys
GPC-4э	Able to apply regulatory legal acts and norms of professional ethics in the field of ecology and nature management.	Regulation System in Construction	Environmental rationing
GPC-6э	Able to design, represent, protect and disseminate the results of their professional activities, including research.	-	Applied scientific research, Preparation for the defense procedure and defense of the final qualification work

* - 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 "Project Management" 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.		108		108		
including:						
Lectures (L)		15		15		
Laboratorywork (LW)						
Practical/seminar classes (SC)		30		30		
Independent work of students, ac.h.		49		49		
Control (exam / test with assessment), ac.h.		14		14		
Total labor intensity of the discipline	ac.h.	108		108		
	credit	3		3		

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

Type of educational work		TOTAL, ac.h.	Semester(s)			
			1	2	3	4
Contactwork, ac.h.		108		108		
including:						
Lectures (L)		4		4		
Laboratorywork (LW)						
Practical/seminar classes (SC)		6		6		
Independent work of students, ac.h.		96		96		
Control (exam / test with assessment), ac.h.		4		4		
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. Project activity. Models and schemes of project management. Management objects and project participants	Goals and objectives to be solved in the project management process. Concepts of project and operational activities. Functional management, project management and variants of project management schemes. Basic concepts in project management. Basic organizational forms and classification of project types. Project participants and their functions. Functional, design and matrix management structures. Phases of the investment project. Phases of the project life cycle. International experience in project management. Project content management	(L,S)
Topic 2. Project development	Project life cycle, phases, schedule. The schedule of the impact on the project of the cost of change, risks and uncertainties. Project concept and investment plan. Pre-investment research. Project analysis. Financial feasibility of the project and its analysis. Feasibility study: purpose, composition and execution procedure. Business plan: appointment, participants, composition. Project initiation scheme	(L,S)
Topic 3. Project finance	Definition of finance, financial and monetary relations. Enterprise finance. Project financing and its sources. Organizational forms of financing. Project financing, its advantages and disadvantages	(L,S)
Topic 4. Evaluation of the effectiveness of investment projects	The effect and effectiveness of the project. The concept of discounting. The simplest methods for determining effectiveness. Methodological recommendations of the State Committee for Science and Technology. Methodology for determining the effectiveness of UNIDO. The equivalent annuity method.	(L,S)
Topic 5. Project planning	Definition and main tasks of planning. Processes and management levels: main and auxiliary processes. Hierarchical structure of WBS (Work Breakdown Structure). Milestones of the project. Network planning, Gantt chart. Network diagrams: arrow networks ADM arrow networks (arrow diagram method) and PDM precedence networks	(L,S)

Name of the discipline section	Content of the section (topics)	Type of educational work*
	(precedence diagram method). Resource planning, reproducible and non-reproducible resources, functions of need and availability of resources. Calendar planning. Estimated planning.	
Topic 6. Cost management and project regulation	Basic principles and methods of project cost management. Assets=liabilities. The balance sheet. Cost management throughout the life cycle of the LCC (life-cycle costing) project. Project cost estimation. Budgeting, its functions and models. Cost reporting. Monitoring of project activities and change management.	(L,S)
Topic 7. Work management	Basic concepts. The relationship of volumes, productivity and cost of work. An example of using linear programming for work planning. Managing the content of the works. Structure and scope of work. Effective time management. Labor productivity.	(L,S)
Topic 8. Quality Management	The concept of quality management: definition, sources of quality, the "house" of quality and the modern concept of quality management. Principles of General quality Management TQM (Total Quality Management). The concept of qualimetry. Project quality management. The Taguchi method. Quality management standards and ensuring the functioning of the quality management system. Certification of the project's products.	(L,S)
Topic 9. Project resource management	Project resource management processes. Material and technical support of the project. Processes and basic principles of project resource management. Procurement management. Supply management. Inventory management. Inventory accounting. Logistics in resource management.	(L,S)

Name of the discipline section	Content of the section (topics)	Type of educational work*
Topic 10. Project Team	Human resource management planning. Data flows during management planning. The RACI matrix. What is a team. The effectiveness of the team. Project team recruitment. The main stages of the project team life cycle. Team development and organization of its work. Project team management and management types. Conflict management.	(L,S)
Topic 11. Risk management in projects	Basic concepts of risk management in projects. Qualitative and quantitative analysis of project risks. Methods of risk reduction. Organization of risk management	(L,S)
Topic 12. Monitoring and completion of the project	Monitoring of project activities. Measuring progress and analyzing results. Decision-making and change management. Commissioning. Closing the project. Exit from the project.	(L,S)

* - 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

Classroom type	Classroom equipment	Specialized educational/laboratory equipment and materials for the discipline/module realization
Lecture hall	To organize the educational process, a classroom is used for conducting lecture-type classes, seminar-type classes, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture; chalk board; technical means: HP PRO system unit, HP-V2072A monitor, LUMIEN retractable projection screen, with Internet access. Software: Microsoft products (OS, office suite, including MS Office/Office 365, Teams, Skype)	
For independent work of students	Computer class for conducting practical classes, course design, independent work. A set of specialized furniture; marker board; technical means: personal computers (18.), projection screen, multimedia projector, NEC NP-V302XG, Internet access. Software: Microsoft products (OS, office suite, including MS Office/Office 365,	

	Teams, Skype)	
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* - the audience for independent work of students must be specified

7. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE

Mandatory literature:

1. Проекты и управление проектами в землеустройстве и кадастрах в современной компании : Учебное пособие / Г. Л. Ципес, А. С. Товб. М.: Олимп-Бизнес, 2009. — 462 с.
2. Романова М.В. Управление проектами в землеустройстве и кадастрах: Учебное пособие по дисциплине специализации специальности «Менеджмент организации» М.: ФОРУМ: ИНФРА-М, 2009. — 253 с.
3. Светлов Н.М., Светлова Г.Н. Информационные технологии управления проектами. М.: ЦОП ФГОУ ВПО РГАУ-МСХА им. К.А. Тимирязева, 2006. — 148 с.

Additional literature:

1. Вентцель Е.С. Исследование операций: Задачи, принципы, методология. М.: Дрофа, 2006.
2. Волков И.М, Грачёва М.В. Проектный анализ. М.: ЮНИТИ, 1998. — 423 с.
3. Дитхелм, Г. Управление проектами в землеустройстве и кадастрах: [в 2 т.; пер. с нем.]. СПб.: Бизнес-пресса, 2003.
4. Клевцова Н.В. Эффективное управление экономическими проектами с использованием новых информационных технологий. М.: Изд-во МГЛУ, 2007. — 116 с.
5. Колпачев В.Н. Модели и методы в управлении проектами. Воронеж: Воронеж. гос. архитектурно-строит. ун-т, 2005. - 271 с.
6. Компьютерные технологии управления проектами. Программа TimeLine: Учеб. пособие / А.И. Демченко. Челябинск: Изд-во ЮУрГУ, 2001. - 49 с.
7. Локк Д. Основы управления проектами: [пер. с англ.]. - М. : НИРРО, 2004. - 239 с.
8. Мармел Э. Microsoft Office Project 2003: Библия пользователя / пер. с англ. и ред. И. Б. Тараброва. - М.: Диалектика, 2004. - 770 с.
9. Пинто Дж. Управление проектами в землеустройстве и кадастрах. СПб: Питер, 2004. — 464 с.
10. Риск-менеджмент инвестиционного проекта: Учебник для студентов вузов, обучающихся по экономическим специальностям / Под ред. М.В. Грачёвой, А.Б. Секерина. М.: ЮНИТИ-ДАНА, 2009. - 544 с.
11. Управление инновационными проектами: Учеб. пособие / Под ред. В.А. Елисеева. М.: НИИ РИНКЦЭ, 2005. - 310 с.

12. Управление проектами в землеустройстве и кадастрах: стандарты, методы, опыт / Товб А.С., Ципес Г.Л. М.: ЗАО Олимп-Бизнес, 2003. — 239 с.

13. Управление проектами в землеустройстве и кадастрах: Толковый англо-рус. слов.-справ. / Шапиро В.Д., Ольдерогге Н.Г., Юркевич А.А.; Под ред. В.Д.Шапиро. М.: Высш. шк., 2000. — 379 с.

Resources of the information and telecommunications network "Internet":

Internet sources

Ресурсы информационно-телекоммуникационной сети «Интернет»:

1. ЭБС РУДН и сторонние ЭБС, к которым студенты университета имеют доступ на основании заключенных договоров:

- Электронно-библиотечная система РУДН – ЭБС РУДН
<http://lib.rudn.ru/MegaPro/Web>

- ЭБС «Университетская библиотека онлайн» <http://www.biblioclub.ru>

- ЭБС Юрайт <http://www.biblio-online.ru>

- ЭБС «Консультант студента» www.studentlibrary.ru

- ЭБС «Лань» <http://e.lanbook.com/>

- ЭБС «Троицкий мост»

2. Базы данных и поисковые системы:

- электронный фонд правовой и нормативно-технической документации
<http://docs.cntd.ru/>

- поисковая система Яндекс <https://www.yandex.ru/>

- поисковая система Google <https://www.google.ru/>

- реферативная база данных SCOPUS
<http://www.elsevierscience.ru/products/scopus/>

Общедоступные электронные библиотеки (Библиотека «Киберленинка», Библиотека МГУ <http://www.nbmgu.ru/>, Библиотека РУДН <http://lib.rudn.ru/> и др.).

Полнотекстовые электронные версии журналов

Базы данных научной периодики и книг (Elibrary.ru, Национальный цифровой ресурс Руконт, Наука в Рунете и др.)

<https://www.un.org/sustainabledevelopment/ru/sustainable-development-goals/> - сайт ООН, Цели в области устойчивого развития

www.mnr.gov.ru – сайт Министерства природных ресурсов и экологии РФ;

<http://rpn.gov.ru/> – Федеральная служба по надзору в сфере природопользования (Росприроднадзор);

www.ecoindustry.ru – сайт журнала «Экология производства»;

www.unep.org – сайт программы организации объединенных наций по окружающей среде;

www.wwf.ru – сайт Всемирного фонда дикой природы.

<http://burondt.ru/> - сайт бюро НДТ – информация о внедрении нормирования на основе наилучших доступных технологий

http://www.mnr.gov.ru/activity/directions/zelenye_standarty/zelenye_standarty/?sphrase_id=124597 – информация о разработке, применении и внедрении «зеленых стандартов»

http://www.mnr.gov.ru/activity/directions/natsionalnyy_proekt_ekologiya/ - информация о ходе реализации Национального проекта «Экология»

Российская ассоциация управления проектами. М.: Совнет, 2002, 2009. <http://www.sovnet.ru>

Управление проектами в землеустройстве и кадастрах. М.: ГК ЛАНИТ, 1998, 2008. <http://www.projectmanagement.ru>

Microsoft Office Project 2007: Программный продукт. Microsoft Corp., 2007.

* - all teaching materials for independent work of students are placed in accordance with the current procedure on the discipline page in the TUIS!

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 "Project Management" 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

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name and surname.

HEAD OF EDUCATIONAL DEPARTMENT:

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