



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education

Far Eastern Federal University

(FEFU)

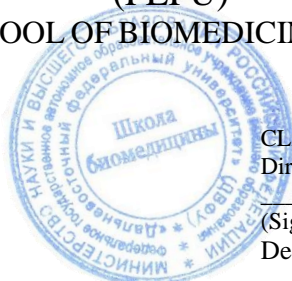
SCHOOL OF BIOMEDICINE

AGREED

Head of OP

(Signed)

(Full name)



CLAIM

Director of the issuing structural unit

(Signed)

(Acting Name)

December 06, 2022

WORK PROGRAM OF THE DISCIPLINE

Philosophy of Natural Science

Direction of training 06.04.01 Biology

Master's Programme in Molecular and Cell Biology

Form of training: full-time

Course 1 Sem.1

lectures 10 hours.

practical exercises 18 hours.

laboratory work - hour.

total hours of classroom load 28 hours.

independent work 44 hours.

control works (quantity) are not provided

coursework / coursework project is not provided

credit 1 semester

exam is not provided

The work program is drawn up in accordance with the requirements of the Federal State Educational Standard in the direction of training 06.04.01 Biology, approved by the order of the Ministry of Education and Science of Russia dated 11.08.2020 No. 934

The work program was discussed at the meeting of the Department of Medical Biology and Biotechnology Protocol dated December 06, 2022 No. 2

Head of the Department Ph.D. Demenchuk P. Yu.

Authors: Doctor of Physical Sciences Yachin S. E., Ph.D., Associate Professor Pchelkina S. Yu., Ph.D. Kamenev.

Vladivostok
2022

Reverse side of the RPD cover page

1. The work program was revised at the meeting of the Department / department / department (implementing the discipline) and approved at the meeting of the Department / department / department (issuing structural unit), the protocol from " _____ № _____

2. The work program was revised at the meeting of the Department / department / department (implementing the discipline) and approved at the meeting of the Department / department / department (issuing structural unit), the protocol from " _____ № _____

3. The work program was revised at the meeting of the Department / Department / Department (implementing the discipline) and approved at the meeting of the Department / Department / Department (issuing structural unit), the protocol from " _____ № _____

4. The work program was revised at the meeting of the Department / Department / Department (implementing the discipline) and approved at the meeting of the Department / Department / Department (issuing structural unit), the protocol from " _____ № _____

5. The work program was revised at the meeting of the Department / Department / Department (implementing the discipline) and approved at the meeting of the Department / Department / Department (issuing structural unit), the protocol from " _____ № _____

Annotation to the work program of the discipline "Philosophy of Natural Science"

Goals and objectives of mastering the discipline:

Course objectives:

- To reveal the philosophical foundations of modern scientific knowledge.
- To consider the basic principles and forms of implementation of scientific and technical activities at the present stage of development of scientific and technical culture.
- To identify scientific and technical features of architectural activity.

The tasks of the discipline are due to the purpose of its study and can be defined as follows:

- To acquaint students with the current state of philosophical and methodological research of science;
- To give an idea of the nature of scientific and technical activity of man;
- Consider the history of European science and technology;
- To determine the general principles of scientific knowledge;
- Present the main forms of implementation of scientific activities;
- Reveal the principles of artistic design.

Universal competencies of graduates and indicators of their achievement:

Name of the category (group) of universal competencies	Code and name of the universal competence (the result of mastery)	Code and name of the competency achievement indicator
Intercultural interaction	UK-5 Is able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	UK-5.1 Analyzes the socio-cultural parameters of various groups and communities and the socio-cultural context of interaction. UK-5.2 Builds socio-cultural communication and interaction, taking into account the necessary parameters of intercultural communication and socio-cultural context. UK-5.3 Builds professional interaction in a multicultural environment.
Self-organization and self-development (including health care)	UK-6 Is able to determine and implement the priorities of its own activities and ways to improve it on the basis of self-assessment.	UK-6.1 Solves the problems of its own personal and professional development, determines and implements the priorities for improving its own activities. UK-6.2 Uses technologies and skills to manage and improve their cognitive activity on the basis of self-esteem, self-control and the principles of self-education throughout life, including the use of health-saving approaches and techniques.

Code and name of the competency achievement indicator	Name of the assessment indicator (the result of training in the discipline)
UK-5.1 Analyzes the socio-cultural parameters of various groups and communities and the socio-cultural context of interaction.	<p>He knows the philosophical foundations of intercultural interaction.</p> <p>He is able to use the techniques of reflective thinking in the description of the intercultural diversity of society.</p> <p>Possesses the skills to perceive the intercultural diversity of society in the context of modern concepts of sustainable development.</p>
UK-5.2 Builds socio-cultural communication and interaction, taking into account the necessary parameters of intercultural communication and socio-cultural context.	<p>Knows the theoretical foundations of models of intercultural communication, taking into account the principles of sustainable development.</p> <p>He is able to apply the principles of the concepts of sustainable development to the description of the problems of intercultural interaction.</p> <p>He has the skills of intercultural communication from the standpoint of solving the problems of modern concepts of sustainable development.</p>
UK-5.3 Builds professional interaction in a multicultural environment	<p>He knows the problems of intercultural interaction.</p> <p>Able to use techniques for building effective intercultural interaction.</p> <p>He has the skills to analyze the problems of intercultural interaction in the context of the prospects for sustainable development.</p>
UK-6.1 Solves the problems of its own personal and professional development, determines and implements the priorities for improving its own activities.	<p>He knows the philosophical foundations of modern strategies for the self-development of the individual in the context of the ideas of sustainable development.</p> <p>Able to identify the basic principles of strategies for self-development of the individual.</p> <p>He has the skills to perceive the strategies of self-development of the individual, taking into account modern concepts of sustainable development.</p>
UK-6.2 Uses technologies and skills to manage and improve their cognitive activity on the basis of self-esteem, self-control and the principles of self-education throughout life, including the use of health-saving approaches and techniques.	<p>He knows the historical prerequisites for the formation of the concepts of sustainable development and their philosophical problems.</p> <p>Able to use the knowledge gained in choosing possible strategies for self-organization and self-development.</p> <p>Possesses the skills of critical comprehension of the chosen strategy of self-development of the individual and self-assessment of his own progress in its implementation.</p>

General professional competencies of graduates and indicators of their achievement:

Name of the category (group) of general professional competencies	Code and name of general professional competence (the result of mastery)	Code and name of the competency achievement indicator
	OPK-3 Is able to use the philosophical concepts of natural science and understanding of modern biospheric processes for a systematic assessment and forecast of the	OPK-3.1 Uses the basic philosophical concepts of classical and modern natural science, the basics of the doctrine of the biosphere, the main methods and results of environmental monitoring, models and forecasts of the development of biospheric processes.

	development of the sphere of professional activity.	<p>OPK-3.2 Applies systems analysis techniques to assess the environmental impacts of human activities.</p> <p>OPK-3.3 Predicts, on the basis of regulatory and scientific methodology, the environmental consequences of the development of the chosen professional sphere, has experience in choosing ways to optimize technological solutions from the standpoint of environmental safety.</p> <p>OPK-3.4 Predicts the development of the sphere of professional activity for system assessment based on an understanding of modern biospheric processes and the use of philosophical concepts of natural science.</p>
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Code and name of the competency achievement indicator	Name of the assessment indicator (the result of training in the discipline)
<p>OPK-3.1 Uses the basic philosophical concepts of classical and modern natural science, the basics of the doctrine of the biosphere, the main methods and results of environmental monitoring, models and forecasts of the development of biospheric processes.</p>	<p>Knows the basic philosophical concepts of classical and modern natural science, the basics of the doctrine of the biosphere, the main methods and results of environmental monitoring, models and forecasts for the development of biospheric processes</p> <p>Able to use in practice the philosophical concepts of natural science</p> <p>Possesses the skills of search and comparison of options for a methodological solution to the task, taking into account possible criticism and limitations.</p>
<p>OPK-3.2 Applies systems analysis techniques to assess the environmental impacts of human activities.</p>	<p>Knows the methods of modern analysis</p> <p>Able to assess the environmental consequences of anthropogenic activities.</p> <p>Proficient in the methods of system analysis</p>
<p>OPK-3.3 Predicts, on the basis of regulatory and scientific methodology, the environmental consequences of the development of the chosen professional sphere, has experience in choosing ways to optimize technological solutions from the standpoint of environmental safety.</p>	<p>Knows the methodology of scientific research</p> <p>Able to predict the environmental consequences of development, has experience in choosing ways to optimize technological solutions from the standpoint of environmental safety</p> <p>Possesses the skill of forecasting on the basis of normative and scientific methodology of environmental consequences in his professional field</p>
<p>OPK-3.4 Predicts the development of the sphere of professional activity for system assessment based on an understanding of modern biospheric processes and the use of philosophical concepts of natural science.</p>	<p>Knows modern concepts of natural science</p> <p>Able to predict the development of the sphere of professional activity for system assessment based on an understanding of modern biospheric processes and the use of philosophical concepts of natural science</p> <p>Possesses the skills of synthesis of various information within the framework of the organization of research work</p>

I. Labor intensity of discipline and types of training sessions in the discipline

The total labor intensity of the discipline is 2 z.u. (72 academic hours). (1 credit corresponds to 36 academic hours)

Types of training sessions and work of the student in the discipline:

Designation	Types of training sessions and work of the student
L	Lecture
AVE	Practical exercises
WED	Independent work

Structure of the discipline:

The form of training is full-time.

№	Name of the section Discipline	Semester	Number of hours by types of training sessions and work of the student			Forms of intermediate certification, current control of academic performance
			L	Ave	WED	
1	Topic 1. Philosophy, science, philosophy of science	1	2	2	8	Credit
2	Topic 2. The Scientific Method		2	4	8	
3	Topic 3. Rationality as a criterion of knowledge in scientific cognition. Philosophical Problems of Scientific Rationality		2	4	8	
4	Topic 4. Growth and development of scientific knowledge. Contemporary discussions on scientific methodology		2	4	10	
5	Topic 5. Philosophy of Natural Science		2	4	10	
Total:		1	10	18	44	

II. STRUCTURE AND CONTENT OF THE THEORETICAL PART OF THE COURSE

Lectures (10 hours)

Topic 1. Philosophy, Science, Philosophy of Science (2 hours) .

Topic 2. The Scientific Method (2 hours) .

Topic 3. Rationality as a criterion of knowledge in scientific cognition. Philosophical Problems of Scientific Rationality (2 hours) .

Topic 4. The Growth and Development of Scientific Knowledge. Contemporary Discussions on Scientific Methodology (2 hours) .

Topic 5. Philosophy of Natural Science (2 hours).

III. STRUCTURE AND CONTENT OF THE PRACTICAL PART OF THE COURSE AND INDEPENDENT WORK

Practical exercises (18 hours)

Session 1. Philosophy, science, philosophy of science.

Q1. The factor of influence of philosophy on science and science on philosophy: historical facts and explanatory approaches.

Q2. Philosophical and scientific methods in the knowledge of the world.

Q3. Philosophy of science – general and particular: specificity and content.

Q4. The concept of science. Analytics of the content of the definition of science.

Q5. Specificity of scientific cognition in relation to other forms of human cognitive activity.

Question 6. Criterion of scientific knowledge. The problem of truth in scientific knowledge.

Question 7. The structure of scientific cognition: the object of cognition, the subject of cognition, the scientific method, the scientific language.

Session 2-3: The Scientific Method.

Q1. The concept of the scientific method.

Q2. Philosophical aspects of comprehension of the scientific method (principles of methodical thinking).

Q3. The Structure of the Scientific Method. The main forms of scientific knowledge.

Question 4. Definition and principles of empirical research. The concept of scientific experience and the specifics of conducting empirical research in the natural, technical, humanitarian sciences.

Question 5. Definition of theory. Philosophical problems of theoretical cognition. Specificity of theoretical research.

Question 6. Methods of theoretical research.

Question 7. Actual theories of modern natural, technical and humanitarian sciences in the field of vocational training (architectural design)

Question 8. The concept of a scientific hypothesis. Problems of scientific assumption.

Question 9. Types of hypotheses. General, particular, working hypotheses used in modern research in the field of natural, technical and humanitarian sciences.

Question 10. Scientific fact. Philosophical problems in the definition of scientific fact.

Question 11. Structure of scientific fact.

Question 12. Features of determining the criterion of scientific fact in the natural, technical and humanitarian sciences in the field of vocational training (architectural design).

Session 4. Rationality as a criterion of knowledge in scientific cognition.
Philosophical problems of scientific rationality.

Q1. The concept of rationality.

Q2. Classical and non-classical types of rationality.

Q3. The correlation of cultural and scientific rationality in the structure of human thinking.

Question 4. The influence of philosophical ideas on the formation of classical scientific rationality.

Question 5. The doctrine of method and methodological design of European science as a manifestation of scientific rationality

Question 6. Common and different in the application of scientific rationality in the natural, technical and humanitarian sciences.

Session 5. Philosophy of technology.

Q1. The birth of the philosophy of technology. Socio-cultural factors of the formation of philosophical reflection on the essence of technology.

Q2. The history of philosophical understanding of technology.

Q3. History of the development of technology.

Q4. Modern philosophical approach in understanding the phenomenon of technology.

Q5. The problem of the relationship between science and technology.

Q6. On the correlation of scientific, technical and artistic principles and approaches in the system of architectural knowledge.

Session 6. Growth and development of scientific knowledge. Contemporary discussions about scientific methodology.

Q1. Modern philosophy of science – whose ideas most accurately express the essential changes in scientific knowledge in the twentieth century?

Q2. The main ideas of the philosophy of science of the twentieth century - which question (problem) is the most relevant?

Q3. Stereotypes, clichés in scientific research – what should be abandoned from the scientific heritage of previous eras?

Question 4. Development of scientific knowledge.

Question 5. Concepts of growth of scientific knowledge.

Question 6. Methodology of research programs and its essence.

Question 7. Scientific revolution and paradigm shift.

Session 7-8: A Scientific Picture of the World.

Q1. The concept of a picture of the world.

Q2. The concept of a scientific picture of the world, the purpose of the scientific picture of the world.

Q3. Varieties of the scientific picture of the world.

Q4. The history of the development of general and special scientific pictures of the world.

Question 5. The classical scientific picture of the world as a European-type science and the formation of the tradition of European scholarship.

Q6. Criticism of the classical scientific picture of the world.

Question 7. Scientific revolution of the turn of the XIX – XX centuries.

Question 8. Non-classical scientific picture of the world: The birth of non-classical natural science. Development of ideas about nature in non-classical science.

Q9. The Post-Nonclassical Paradigm of Science: The Formation of Nonclassical Science.

Question 10. The problem of the non-classical picture of the world: with the homo-organizing universe and with the trajectory of a person in a self-organizing world.

Lesson 9: Architectural cognition. Scientific problems of architectural cognition.

Q1. Scientific thinking in the system of architectural cognition.

Q2. Modern methodological discussions in world and domestic architecture.

Q3. Leading world and domestic schools of architectural thought.

Q4. The problem of synthesis of science, technology, art in the theory and practice of architectural design.

Q5. Solution of anthropological, cultural, social issues in architectural form.

IV. EDUCATIONAL AND METHODOLOGICAL SUPPORT OF INDEPENDENT WORK OF STUDENTS

1. Schedule of independent work on the discipline

№	Date/Deadlines	Type of independent work	Approximate norms of execution time	Form of control
1	1-18 weeks	PR-3 Essays	44 ha	UO-1 Interview
		Total	44 hoursa	

2. Xcharacteristics (description) of tasks for independent work of students and methodological recommendations for their implementation.

3. Requirements for preparation for the presentation and registration of the results of independent work:

- 1) Find in the relevant literature material for the preparation of these topics;
- 2) Prepare the result in writing in the form of an essay.
- 3) Prepare for the oral interview at the test.

4. General rules for the preparation of essays:

- 1) Essays should be submitted either in paper or electronic form.
- 2) The essay must contain at least 3 pages of printed text of a standard form (Times New Roman, 14 font, 1.5 spacing)
- 3) At the beginning of the essay, it should contain the title (Reproduction of the wording of the question on which it is compiled), the name of the student, the number of the group, the name of the direction of training.

4) In the essay, you need to state in writing the essence of the designated topic, independently conduct a study of this topic in the relevant literature using concepts and analytical tools, formulate a meaningful problem and draw conclusions that summarize the author's position on the problem posed.

- 5) At the end of the essay there should be a list of references.

5. Criteria for evaluating the performance of independent work

1) Independent work is checked during an oral survey - an interview - at the stage of intermediate certification - credit.

2) The evaluation of independent work is determined by the level of answer to questions.

V. MONITORING THE ACHIEVEMENT OF COURSE OBJECTIVES

No p/n	Supervised sections / topics of the discipline	Achievement indicator code and name	Learning outcomes	Assessment tools	
				current control	intermediate attestation
1	<p>Topic 1. PhilOsophy, Science, Philosophy of Science</p> <p>Topic 2. The Scientific Method</p> <p>Topic 3. Rationality as a criterion of knowledge in scientific cognition. Philosophical Problems of Scientific Rationality</p> <p>Topic 4. Growth and development of scientific knowledge. Modern Discussions on Scientific Methodology</p> <p>Tema 5. Philosophy of Natural Science</p>	<p>UK-5.1; UK-5.2; UK-5.3; UK-6.1; UK-6.2; OPK-3.1; OPK-3.2; OPK-3.3; OPK-3.4</p>	<p>Knows, can, owns</p>	<p>UO-1 Interview</p>	<p>Credit questions</p>

VI. LIST OF EDUCATIONAL LITERATURE AND INFORMATION AND METHODOLOGICAL SUPPORT OF THE DISCIPLINE

Main literature:

1. Architecture and the Architectural Environment: Issues of Historical and Modern Development: Materials of the International Scientific and Practical Conference: A Collection of Articles / L. V. Anisimova, L. Y. Anisimov, A. T. Akhmedova [et al.]; edited by V. N. Evseev. — Tyumen: Tyumen Industrial University, 2017. — 376 c. — ISBN 978-5-9961-1504-4. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/83679.html> (access date: 2022-03-14). — Access

mode: for authorized users.

2. Aulov, A. P. Istoriya i filosofiya nauki: uchebno-metodicheskoe posobie dlya postgraduates / A. P. Aulov, O. N. Slobotchikov. — Moscow: Institute of World Civilizations, 2021. — 164 c. — ISBN 978-5-907445-62-8. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/116603.html> (date of access: 2022-03-14). - Access mode: for authorized. Users.

3. Volichenko, O. V. Creative concepts of the newest architecture: monograph / O. V. Volichenko ; edited by D. D. Omuraliev. — Saratov: Vuzovskoe obrazovanie, 2020. — 307 c. — ISBN 978-5-4487-0649-3. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/89678.html> (date of access: 2022-03-14). - Access mode: for authorized. Users. - DOI: <https://doi.org/10.23682/89678>.

4. Granstrem, M. A. Basic concepts of architecture: a textbook / M. A. Granstrem, M. V. Zolotareva. — St. Petersburg: St. Petersburg State University of Architecture and Civil Engineering, EBS ASV, 2018. — 80 c. — ISBN 978-5-9227-0841-8. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/80736.html> (date of access: 14.03.2022). — Access mode: for authorized users.

5. Gorgorova, Y. V. Basic tendencies of modern architecture : uchebnoe posobie / Y. V. Gorgorova, M. G. Sarkisyants. — Rostov-on-Don: Don State Technical University, 2018. — 149 c. — ISBN 978-5-7890-1552-0. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/118067.html> (access date: 2022-03-14). — Access mode: for authorized users

6. Danilova, E. V. Osnovy teorii klassii arkhitektury: uchebnoe posobie / E. V. Danilova. — Samara: Samara State Technical University, EBS ASV, 2018. — 188 c. — ISBN 978-5-7964-2135-2. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/90685.html> (access date: 2022-03-14). — Access mode: for authorized users

7. "Zeitgeist" and urbanism: architecture, décor, spatial environment, urban landscape (based on the materials of the Volga region): collective monograph / M. V. Antipenko, I. V. Arkhangelskaya, E. V. Baykova [et al.]; edited by I. R. Plehve [et al.]. — Saratov: Saratov State Technical University named after Y. A. Gagarin, EBS ASV, 2019. — 140 c. — ISBN 978-5-7433-3407-0. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/118364.html> (date of access: 14.03.2022). — Access mode: for authorized users.

8. Kantariuk, E. A. Anthropology of design: philosophy, technology,

techniques: a textbook / E. A. Kantaryuk, V. A. Kukushkina. — Lipetsk: Lipetsk State Technical University, EBS ASV, 2021. — 74 c. — ISBN 978-5-00175-086-4. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/118437.html> (date of access: 14.03.2022). — Access mode: for authorized users.

9. Mezentsev, S. D. Philosophical problems of technical sciences: a textbook for undergraduates studying in the areas of training 08.04.01 Construction, 07.04.01 Architecture, 07.04.04 Urban Planning, 09.04.01 Informatics and Computer Engineering / S. D. Mezentsev, E. G. Krivykh. — Moscow: Moscow State University of Civil Engineering, IPR Media, EBS ASV, 2015. — 104 c. — ISBN 978-5-7264-1104-0. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/36185.html> (date of access: 2021.11.22). — Access mode: for authorized users

10. Kavtaradze, S. Y. Anatomy of Architecture. Seven books about logic, form and meaning / S. Y. Kavtaradze. — 4th ed. — Moscow: Publishing House of the Higher School of Economics, 2018. — 472 c. — ISBN 978-5-7598-1491-7. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/89342.html> (access date: 2022-03-14). — Access mode: for authorized users

11. Konovalova, E. N. Filosofskie problemy nauki i tekhnika: uchebnoe posobie / E. N. Konovalova. — Astrakhan: Astrakhan State University of Architecture and Civil Engineering, EBS ASV, 2021. — 79 c. — ISBN 978-5-93026-126-4. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/115503.html> (access date: 2022-03-14). — Access mode: for authorized users

12. Ruzavin G. I. Metodologiya nauchnogo kosnosheniya [Elektronnyi resurs]: uchebnoe posobie dlya vuzov/ Ruzavin G.I.— Electron. text data.— Moscow: UNITY-DANA, 2017.— 287 p.— Access mode: <http://www.iprbookshop.ru/81665.html>.

13. Stepin V. S. Filosofiya i komodologiya nauki / Stepin V.S. — Moscow: Academic Project, Alma Mater, 2015. — 719 c. — ISBN 978-5-8291-1715-3. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/69860.html> (date of access: 2021.11.22). — Access mode: for authorized users.

14. Stolyarov, V. I. Istoriya i filosofiya nauki : uchebnik / V. I. Stolyarov, N. Y. Melnikova ; edited by V. I. Stolyarov. — Moscow: Sport Publishing House, 2021. — 464 c. — ISBN 978-5-907225-73-2. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/116354.html> (access date: 2022-03-14). — Access

mode: for authorized users

Further reading:

1. Actual problems of philosophy of science / M. A. Rozov, G. I. Ruzavin, E. V. Girusov, V. S. Shvyrev. — Moscow: Progress-Traditsiya, 2007. — 344 p. — ISBN 5-89826-261-Kh. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/7170.html> (access date: 11/22/2021). — Access mode: for authorized users
2. Architecture and Social World / V. I. Arshinov, I. A. Bondarenko, K. O. Vytuleva [et al.] ; edited by I. A. Dobritsyn. — Moscow: Progress-Tradition, 2012. — 312 c. — ISBN 978-5-89826-398-0. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/21499.html> (date of access: 14.03.2022). — Access mode: for authorized users.
3. Architectural and construction terms : dictionary / compilers A. V. Grechishkin, V. A. Khudyakov, G. B. Illyustrov. — Penza : Penza State University of Architecture and Construction, EBS ASV, 2012. — 132 c. — ISBN 978-5-9282-0780-9. — Text : electronic // Digital educational resource IPR SMART : [site]. — URL: <https://www.iprbookshop.ru/23093.html> (date of access: 2022-03-14). - Access mode: for authorized. Users
4. Bariev R.Kh. History and philosophy of science (general problems of philosophy of science) [Electronic resource]: uchebnoe posobie (kratkiy kurs)/ Bariev R.Kh., Levin G. M., Manko Y. V. – Electron. text data. – SPb.: Petropolis, 2009. – 112 c. Access mode: <http://www.iprbookshop.ru/27254>
5. Bessonov B. N. Istoriya i filosofiya nauki: uchebnoe posobie dlya magistrov / B. N. Bessonov; Moscow City Pedagogical University. – M.: Yurayt, 2015. – 394 p. <http://lib.dvfu.ru:8080/lib/item?id=chamo:784965&theme=FEFU>.
6. Vanslov, V. V. Object of architecture. Art without borders: monograph / V. V. Vanslov, D. O. Shvidkovsky, A. P. Kudryavtsev. — Moscow: Progress-Tradition, 2011. — 528 c. — ISBN 978-5-89826-383-6. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/7247.html> (date of access: 14.03.2022). — Access mode: for authorized users
7. Gulidov, A. I. Struktura fisofskoi znanie v sistema naturykh nauki: praktem dlya samoydogo rabota students / A. I. Gulidov. — Novosibirsk: Siberian State University of Telecommunications and Informatics, 2009. — 78 p. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/55462.html> (date of access: 2021.11.22). — Access mode: for authorized users

8. History and Philosophy of Science (Philosophy of Science): Textbook / Ed. by Prof. Y. V. Kryaneva, Prof. L.E. Motorina. M.: Alfa-M, 2008. <http://lib.dvfu.ru:8080/lib/item?id=chamo:351493&theme=FEFU>.

9. Kimelev, Y. A. Methodology of social sciences (Modern discussions): an analytical review / Y. A. Kimelev; edited by G. V. Khlebnikov. — Moscow: Institute of Scientific Information on Social Sciences of the Russian Academy of Sciences, 2011. — 94 c. — ISBN 978-5-248-00566-6. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/22495.html> (date of access: 2021.11.22). — Access mode: for authorized users

Klimenko I. S. Komodologiya sistemnogo issledovanie [Elektronnyi resurs]: uchebnoe posobie / Klimenko I. S.— Elektron. text data. — Saratov: Vuzovskoe obrazovanie, 2020.— 273 p.— Access mode: <http://www.iprbookshop.ru/89238.html>.

11. Koire A. Ocherki istorii filosofskoi mysl'. On the influence of philosophical concepts on the development of scientific theories. M.: Progress. 1995. 286 s. <http://lib.dvfu.ru:8080/lib/item?id=chamo:51749&theme=FEFU>

12. Lashko, S. I. Postneklasicheskaya paradigma nauki i sovremennost' : monografiya / S. I. Lashko, I. A. Sayapina. — Krasnodar: Yuzhnyi institut management, 2007. — 107 p. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/8440.html> (date of access: 2021.11.22). — Access mode: for authorized users.

13. Letov, O. V. The problem of objectivity in science. From Postpositivism to Social Studies of Science and Technology: An Analytical Review / O. V. Letov; edited by G. V. Khlebnikov. — Moscow: Institute of Scientific Information on Social Sciences of the Russian Academy of Sciences, 2011. — 112 c. — ISBN 978-5-248-00611-3. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/22506.html> (date of access: 2021.11.22). — Access mode: for authorized users

14. Lyandenburskii, V. V. Osnovy nauchnykh issledovaniya : uchebnoe posobie / V. V. Lyandenburskii, V. V. Konovalov, A. V. Bazhenov. — Penza: Penza State University of Architecture and Construction, EBS ASV, 2013. — 396 c. — ISBN 978-5-9282-1001-4. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/75308.html> (access date: 2022-03-14). — Access mode: for authorized users

15. Lokotko, A. I. Arkhitektura: avant-garde, absurd, fantastica / A. I. Lokotko. — Minsk: Belorusskaya nauka, 2012. — 208 c. — ISBN 978-985-08-1477-7. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/29412.html> (date of access: 2022-03-14). -

Access mode: for authorized. Users.

16. Mareeva E. V. *Filosofiya nauki: Uchebnoe posobie dlya postgraduates i sovchenei* / Mareeva E. V., Mareev S. N., Maidansky A. D. - M.: NRC INFRA-M, 2016. - 332 p. – Access mode: <http://znanium.com/catalog/product/537080>.

17. Mezentsev, S. D. *Philosophical problems of technical sciences: a textbook for undergraduates studying in the areas of training 08.04.01 Construction, 07.04.01 Architecture, 07.04.04 Urban Planning, 09.04.01 Informatics and Computer Engineering* / S. D. Mezentsev, E. G. Krivykh. — Moscow: Moscow State University of Civil Engineering, IPR Media, EBS ASV, 2015. — 104 c. — ISBN 978-5-7264-1104-0. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/36185.html> (access date: 03/14/2022). — Access mode: for authorized users.

18. Moskovchenko, A. D. *Filosofiya avtotrophnoi tsivilizatsii. Problems of integration of natural, humanitarian and technical sciences: monograph* / A. D. Moskovchenko. — Tomsk: Tomsk State University of Control Systems and Radioelectronics, 2013. — 236 c. — ISBN 978-5-86889-655-2. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/72054.html> (access date: 2021.11.22). — Access mode: for authorized users.

19. *Methodology and methods of scientific research: textbook / compilers A. Y. Naimanov, I. V. Satin, G. S. Turchina.* — Makiivka: Donbass National Academy of Construction and Architecture, EBS ASV, 2016. — 78 p. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/92340.html> (date of access: 14.03.2022). — Access mode: for authorized users.

20. Pavlenko P. D. *Filosofiya i komodologiya sotsial'noi nauki: uchebnoe posobie* / P. D. Pavlenok. – M.: Infra-M, 2015. - 96 p. <http://lib.dvfu.ru:8080/lib/item?id=chamo:809131&theme=FEFU>

21. Ovchinnikova, N. P. *Osnovy naukovedenie arkhitekturi: uchebnoe posobie* / N. P. Ovchinnikova. — St. Petersburg: St. Petersburg State University of Architecture and Civil Engineering, EBS ASV, 2011. — 288 c. — ISBN 978-5-9227-0311-6. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/19021.html> (date of access: 14.03.2022). — Access mode: for authorized users

22. *System Approach in Modern Science* / V. N. Sadovsky, A. I. Uyomov, M. S. Kagan [et al.]; edited by I. K. Liseev, V. N. Sadovsky. — Moscow: Progress-Traditsiya, 2004. — 560 p. — ISBN 5-89826-146-X. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/21527.html> (date of access: 22.11.2021). — Access

mode: for authorized users Stepin V. S., Kuznetsova L. F. Scientific picture of the world in the culture of technogenic civilization. – M., 1994. – 275 p. <http://znanium.com/catalog.php?bookinfo=347529>

23. Tyapin, I. N. Filosofskie problemy tekhniki nauki: uchebnoe posobie / I. N. Tyapin. — Moscow: Logos, 2014. — 216 c. — ISBN 978-5-98704-665-4. — Text: electronic // Electronic library system IPR BOOKS: [site]. — URL: <https://www.iprbookshop.ru/21891.html> (access date: 2021.11.22). — Access mode: for authorized users

VII. METHODOLOGICAL INSTRUCTIONS FOR MASTERING THE DISCIPLINE

In the process of studying the materials of the training course, the following forms of work are offered: conducting practical exercises, carrying out independent work.

I. Classroom classes are focused on highlighting topical problems of modern philosophy of science and are designed to guide students in the proposed material, to lay scientific and methodological foundations for further independent work of students.

II. Independent work:

The content of *independent work* is the preparation of topics of practical classes in accordance with the plan of questions provided for each topic. Independent selection of the source of information in accordance with the list of basic and additional literature, as well as independent search for relevant literature by the student himself.

A condition for the successful preparation of independent work and the delivery of questions in practical classes and on the test is the use of written training in a free form. The student must independently choose the necessary information on these issues, record them in writing, reproduce them orally and this is what will be evaluated at the practical lesson and at the test.

VIII. MATERNAL AND TECHNICAL SUPPORT OF DISCIPLINE

Logistics and Software Discipline

Name of special premises and premises for independent work	Equipping of special rooms and premises for independent work
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Multimedia Auditorium and Polytechnic Institute	Trim Screen Line, Mitsubishi projector, video switching subsystem, audio switching and sound amplification subsystem, Extron ceiling mount speaker system, digital audio processor, AverVision Visualizer, classroom board, specialized educational furniture
Reading rooms of the FEFU Scientific Library with open access to the fund (building A – level 10)	Monoblock HP ProOne 400 All-in-One 19,5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/-RW, GigEth, Wi-Fi, WT, usb kbd/mse, Win7Pro (64-bit) + Win8.1Pro (64-bit), 1-1-1 Wty Internet access speed 500 Mbit/s. Workplaces for people with disabilities are equipped with Braille displays and printers; equipped with: portable devices for reading flat-printed texts, scanning and reading machines with a video amplifier with the ability to regulate color spectra; magnifying electronic magnifiers and ultrasonic markers

In order to provide special conditions for the education of disabled people and persons with disabilities at FEFU, all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilets, signs of information and navigation support.

IX. VALUATION FUNDS

Certification of students in the discipline "Philosophy of Natural Science" is carried out in accordance with local fevu regulations and is mandatory. In the FEFU EOS on the 1C platform, a rating plan of the discipline is drawn up, the implementation of which reflects the success of the course and the formation of competencies.

In the discipline "Philosophy of Natural Science", the curriculum provides for a test, which is issued based on the results of the successful implementation of the control activities provided for in the course program and reflected in the rating plan. Thus, the evaluation tools used for current control are also evaluation tools for intermediate certification in the discipline.

For repeated intermediate certification (for those who, for whatever reason, did not fulfill the required forms of work within the time allotted by the curriculum), questions for credit are used in the discipline.

Assessment forms used (assessment tools)

- Oral Interview (TO): Interview (UH-1);
- Written Works (PR): Multi-level tasks and tasks (PR-11).

1) UH-1 Interview - conducted as part of a test session, for a list of questions see below the content of the answers to the questions defined in the relevant topics in section III ("Structure and content of the theoretical part of the course") and V.

("Educational and methodological support of independent work of students") of this program.

Evaluation criteria

"credited" is posed when the student answers two questions from the list of questions based on the content of the topic of the lecture session and information corresponding to the content of the question from the main or additional sources of information.

"not counted" is posed in the absence of an answer to the question, insufficient volume of presentation or clear contradiction with the materials of lecture sessions and the content of educational sources of information.

2) PR-3 Essays - is carried out within the framework of independent work in the form of written work in accordance with the specified topics during the entire course of study; the results are demonstrated at the test lesson and as material for answering questions test No. 12-21.

Evaluation criteria

"credited" is put if the student has completed the essay in full or sufficient volume of the requirements presented under this type of independent work.

"not counted" is put if the student, both quantitatively and qualitatively, has not coped with this type of work.

Questions for credit

1. Definition of science, its meaning and purpose for man, culture and society;
2. Structure of scientific knowledge;
3. Scientific method;
4. History of European science;
5. Empirical research;
6. Theoretical research;
7. Hypothesis;
8. Scientific fact;
9. Scientific rationality;
10. Philosophy of technology;
11. The problem of the relationship between science and technology;
12. Scientific picture of the world;
13. Copernican Revolution in Natural Science;
14. Galileo – the founder of classical European science;
15. Kepler – the revolution in astronomy and its impact on European science;

16. Descartes – the doctrine of method as the basis of the classical understanding of science;
17. Newton – the pinnacle of European classical science;
18. Great scientific discoveries of classical European science;
19. Classical laws of technology;
20. Great achievements of science and technology at the turn of the XIX – XX centuries and the transition to postclassical science and technology.