MINISTRY OF EDUCATION OF REPUBLIC OF BELARUS

Belarusian National Technical University

Department of Professional Training and Pedagogy

ELECTRONIC EDUCATIONAL AND METHODICAL COMPLEX FOR ACADEMIC DISCIPLINE

INNOVATIONS IN HIGHER EDUCATION

for students enrolled in the advanced higher education program in specialty 7-06-0111-01 "Scientific and pedagogical activities" specialization "Pedagogy of professional training"

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The disc contains an EEMC on the discipline "Innovations in Higher Education", which helps undergraduates to master knowledge about the main technological innovations in the vocational education system, to develop skills to choose and use modern pedagogical technologies in the educational process, to master and implement innovative approaches and technologies in the educational process of higher education.

The modular construction of the EEMC allows for self-examination on the theoretical issues of the studied material, as well as to check the level of assimilation of knowledge of the current and final training of undergraduates in the academic discipline. The EEMC is intended for full-time and part-time undergraduates in the specialty 7-06-0111-01 "Scientific and pedagogical activity".

System requirements: IBM PC-compatible standard configuration PC, CD-ROM drive. The program runs on Windows 2010 and higher.

The EEMC is opened by running the EEMC_IHE file.

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PREFACE

General information

The electronic educational and methodological complex (EUMC) was developed in accordance with the educational standard of higher education, the curriculum for higher educational institutions in the specialty 7-06-0111-01-2023 "Scientific and pedagogical activities". EUMC is designed to provide information and methodological support for teaching the discipline "Innovations in Higher Education".

Composition of the allowance

Developed by EUMC in the academic discipline "Innovations in Higher Education" includes 3 training modules; Curriculum for higher educational institutions, including an educational and methodological map of the academic discipline.

The electronic educational material for each module includes: lectures, practical part, tests for current control of knowledge and self-examination, questions for self-preparation, recommended literature. The relationship between the materials of the electronic educational and methodological complex is provided with the help of hyperlinks.

Delivery package and structure of the distribution disk

The electronic educational and methodological complex is supplied on a compact disk. The standard delivery package assumes the presence in the root directory of the electronic educational file in the format of a compiled HTML file with the name EUMK_IVO. In addition, the disk contains the original test files, which can be freely adjusted and used by the teacher giving lectures on the discipline "Innovation in Higher Education".

System requirements

The electronic educational and methodological complex does not impose any special requirements to the system, which makes it possible to use it on any computer on which the operating system MS Windows is installed. The EUMC uses a link to the site page, which is an open system for organizing and conducting testing in the discipline.

WORK GUIDELINES WITH ELECTRONIC EDUCATIONAL AND METHODOLOGICAL COMPLEX

Launch of EUMC

The electronic educational and methodological complex can be launched directly from a CD or, by copying all files to a directory, on a hard disk. To start EUMK, it is enough to double-click with the left mouse button, pointing to the EUMK_IHE file.

Acquaintance with EUMC

The undoubted advantage of this EUMK is that its use does not require additional efforts of the learner to master the interface. After launching EUMC, it is displayed on the screen in a format well known to every computer user from Windows Help files and documentation for many software systems.

On the left side is a navigation window, in which under the "Contents" tab all the organized materials of the EUMC. The right window displays the contents of the EUMC sections. Using the navigation window, you can easily see the structure of the EUMC and navigate through its sections. When you click on any of the elements in the navigation window, the corresponding element of the content of the electronic educational publication is displayed (for example, it can be a fragment of educational material, test control materials, etc.).

EUMC Hyperlink System

The content of the electronic MK "Innovations in Higher Education" includes a system of basic concepts of the training course being studied. These basic concepts are connected by a system of hyperlinks with the articles of the electronic publication. Hyperlinks are traditionally highlighted in blue and underlined. Viewed hyperlinks change their color to purple.

Structure of EUMC

The structure of the electronic UMC "Innovations in Higher Education" consists of the following sections:

- Title page.
- Preface, which describes the goals and objectives of studying the academic discipline "Innovations in Higher Education".
- Methodological instructions for working with electronic UMC, including recommendations for teachers and undergraduates.
- Components of regulatory software support:
- Theoretical training material, structured in 3 modules, each of which includes the necessary theoretical material.
- The practical part of the EUMC contains exercises and keys to them.

- The knowledge control section contains questions on module topics and a list of recommended literature, questions for self-preparation, tests for self-certification on module topics.

– The auxiliary section includes the curriculum of a higher education institution in the academic discipline "Innovations in higher education" for the specialty 7-06-0111-01-2023 "Scientific and pedagogical activities".

Recommendations for the use of EUMC

This EUMC can be used for information and methodological support of the academic discipline "Innovations in Higher Education", studied in accordance with the curriculum and program.

The structure and content of educational materials of the electronic educational system contributes to the systematic mastery of educational material and the involvement of students in almost all stages of the educational process: from the development and adoption of learning objectives to the reflection and assessment (self-assessment) of educational results through independent educational and research work.

The content of the educational material is built on a modular principle, most corresponding to the requirements of the competence approach to ensure the practice-oriented, applied nature of the content of the educational material. The modular principle of supplying educational material allows you to realize the integrity, logical completeness of electronic educational system blocks, and also facilitates work with educational material. The learning material, structured by modules, can be studied not only in a linear sequence, but also in any other.

Mastering undergraduate students of this discipline through electronic UMC allows them to comprehensively see the goals and objectives of studying the discipline "Innovations in Higher Education", gradually master the educational material and form practical skills and relevant competencies.

The use of electronic educational system allows you to more effectively implement one of the most important functions of education-to promote the development of practical skills, skills and competencies among undergraduates.Self-examination of the knowledge of undergraduates can be carried out using tests. Testing will help to better consolidate the educational material of the module, prepare for other, non-test, forms of control.

THEORETICAL SECTION

Module 1: Topics 1.1-1.2

Topic 1.1 Innovations in higher education of the Republic of Belarus as a way to improve its quality

Education Code of the Republic of Belarus 2022

Law of the Republic of Belarus "On Amending the Code of the Republic of Belarus on Education" dated January 14, 2022 No. 154-Z was adopted by the House of Representatives on December 21, 2021 and approved by the Council of the Republic on December 22, 2021. This law is posted on the National Legal Internet Portal of the Republic of Belarus, 01/31/2022, 2/2874.

This document has only 2 parts, General and Special, which include 17 sections consisting of 64 chapters and 297 articles.

Sections of the Code of the Republic of Belarus on Education:

Section I. Fundamentals of legal regulation in the field of education Chapter

Chapter 2. Legal regulation of relations in the field of education

Chapter 3. Education system

Section II. Subjects of educational relations

Chapter 4. Educational institutions, organizations implementing educational programs of science-oriented education, other organizations, individual entrepreneurs carrying out educational activities

Chapter 5. Students, legal representatives of minor students. Social protection of students, support for graduates

Chapter 6. Teaching staff. Other employees of educational institutions

Section III. Educational Relations

Chapter 7. Origin, change and termination of educational relations

Chapter 8. Social relations related to educational relations

Chapter 9. General requirements for the educational process

Chapter 10. Education documents. Training documents

Section IV. Governance and international cooperation in education. Control and self-control over the quality of education

Chapter 11. Education management

Chapter 12. International cooperation in education

Chapter 13. Control and self-control over the quality of education

Section V. Disciplinary Responsibility of Students

Chapter 14. Grounds for bringing students to disciplinary responsibility. Disciplinary measures

Chapter 15. Application of disciplinary measures

Section VI. Financing, logistics for education

Chapter 16. Funding for education

Chapter 17. Logistics support in the field of education

Section VII. Preschool education

Chapter 18. Preschool education system

Chapter 62. System of work to support children who have achieved high indicators in educational and social activities, children in need of health improvement, children recognized as being in a socially dangerous situation, children recognized as needing state protection, and children in need of special educational conditions

Chapter 63. Educational institutions implementing educational programs, taking part in the implementation of measures to eliminate the causes and conditions that led to the creation of an unfavorable environment for children, in the implementation of the plan for the protection of the rights and legitimate interests of the child, other organizations that, in accordance with the law, are granted the right to implement the educational program children in need of health improvement

Chapter 64. Educational process, scientific and methodological support of education in educational and health institutions of education, social and pedagogical institutions, special educational and educational institutions, special medical and educational institutions. Persons mastering educational programs, persons in respect of whom plans to protect the rights and legitimate interests of children, their rights and obligations are being implemented. Educational process. Scientific and methodological support of educational programs

We will focus more on Section XI of Higher Education.

Chapter 35. Higher education system

Article 198. Higher education system

1. Higher education is a level of basic education aimed at developing the personality of a student, cadet, listener, their intellectual and creative abilities, forming their competencies necessary for professional activities, culminating in the qualification of a specialist with general higher, advanced higher or special higher education and (or) degree.

2. The higher education system includes:

2.1. Participants in the educational process in the implementation of educational programs of higher education;

2.2. Educational programs of higher education;

2.3. Institutions of higher education;

2.4. state education organizations that ensure the functioning of the education system;

2.5. educational-methodical associations in the field of higher education;

2.6. organizations that provide students, students, listeners with practical training;

2.7. organizations participating in the implementation of educational programs through a network form of interaction;

2.8. the organization of the personnel's customers;

2.9. state bodies, subordinate to and (or) accountable to the President of the Republic of Belarus, the National Academy of Sciences of Belarus, republican state management bodies, other state organizations, subordinate to the Government of the Republic of Belarus, other organizations within their powers in the field of higher education.

3. Higher education includes the following types:

3.1. general higher education at the time of implementation of the bachelor's education program, aimed at training specialists with the award of qualifications and degrees Baccalavr;

3.2. advanced higher education in the implementation of a master's degree educational program aimed at training specialists with the award of a Master's degree;

3.3. special higher education at the implementation of continuing higher education program, aimed at training specialists with the award of qualifications and degrees Master.

4. General higher education gives the right to continue higher education (to obtain a deeper higher education) and to be employed by the speciality given the qualification and degree Bakalavr. I'm not.

5. The advanced degree gives the right to master the content of the educational program of the postgraduate (адъюнктура) at the level of scientifically oriented education and employment by the obtained specialty and the degree Master.

6. Special higher education gives the right to master the content of the educational program of the postgraduate (адъюнктура) at the level of scientifically oriented education and employment by the speciality obtained, assigned the qualification and degree of Master.

7. The second and subsequent higher education is:

7.1. General higher education-for persons with general higher education, special higher education;

7.2. Special higher education-for persons with general higher education, advanced higher education, special higher education;

7.3. Advanced higher education-for persons with special higher education, advanced higher education.

Article 199. Participants in the educational process in the implementation of educational programs of higher education

1. Participants in the educational process in the implementation of educational programs of higher education are students, cadets, listeners, legal representatives of minor students mastering the content of educational programs of higher education, teaching staff.

2. Students are issued a student card for the entire period of higher education, the sample of which is established by the Ministry of Education.

Students, cadets, listeners for the entire period of higher education are issued a grade book, the sample of which is established by the Ministry of Education.

Article 200. Educational programs of higher education

1. Educational programs of higher education are divided into:

1.1. Bachelor's educational program;

1.2. Master's educational program;

1.3. Continuing higher education program.

2. The list of specialties in which the continuous educational program of higher education is implemented is established by the Ministry of Education on the basis of proposals of interested state bodies subordinate and (or) accountable to the

President of the Republic of Belarus, republican bodies of state administration, other state organizations subordinate to the Government of the Republic of Belarus.

Article 201. Educational standards of higher education

1. The educational standards of higher education include the educational standards of general higher education, the educational standards of advanced higher education and the educational standards of special higher education.

2. Educational standards of higher education are developed for each specialty and establish requirements for the results of mastering the content of the bachelor's educational program, the master's educational program, the continuous educational program of higher education, the content of the curriculum documentation of the corresponding educational program of higher education, the timing of obtaining the corresponding higher education, the organization of the educational process, final certification, assigned qualifications and (or) degrees. Requirements for the results of mastering the content of the relevant educational program of higher education include the formed competencies of students.

3. The development of educational standards of higher education in specialties is carried out according to the form (layout) of the educational standard of the corresponding education in the specialty determined by the Ministry of Education.

Article 202. Term of higher education

1. The period for obtaining general higher education in the full-time form of education is from four to four and a half years. The period for obtaining general higher education in the full-time form of education is established by the educational standard of general higher education in the specialty.

2. The period for obtaining in-depth higher education in the full-time form of education is from one year to two years. The period for obtaining in-depth higher education in the full-time form of education is established by the educational standard for in-depth higher education in the specialty. The period of receiving advanced higher education in evening, correspondence and distance forms of education is determined by the period of receiving advanced higher education in full-time form of education and can be increased by no more than six months.

3. The period for receiving special higher education in the full-time form of education is from five to six years. The period for receiving special higher education in the full-time form of education is established by the educational standard of special higher education in the specialty.

Chapter 39. Scientific and methodological support of higher education

Article 211. System of scientific and methodological support of higher education

1. Scientific and methodological support of higher education includes:

1.1. educational and program documentation of educational programs of higher education;

1.2. program and planning documentation of education;

1.3. educational and methodological documentation;

1.4. Educational and other publications;

1.5. Control and measuring materials;

1.6. Information and analytical materials;

1.7. Methodological instructions for the development of educational program documentation for educational programs of higher education.

2. Scientific and methodological support of higher education is carried out by:

2.1. organizations providing scientific and methodological support of higher education;

2.2. institutions of higher education, institutions of additional adult education;

2.3. Educational and methodological associations in the field of higher education;

2.4. organizations participating in the implementation of educational programs through a network form of interaction;

2.5. Organizations-personnel customers;

2.6. State bodies subordinate and (or) accountable to the President of the Republic of Belarus, the National Academy of Sciences of Belarus, republican bodies of state administration, other state organizations subordinate to the Government of the Republic of Belarus, other organizations and individuals within their powers in the sphere of higher education.

Article 212. Educational program documentation of educational programs of higher education

1. Educational program documentation of educational programs of higher education includes curricula, educational programs, practice programs, individual work plans of undergraduates and students.

2. Curricula are divided into:

2.1. sample curricula for specialties;

2.2. curriculum plans of educational institutions by specialty;

2.3. experimental curricula of educational institutions in specialties;

2.4. individual training plans.

3. The curriculum includes a state component and an educational institution component. The curricula reflect profiling – a variant of implementation of the corresponding educational program of higher education in a specialty, determined by the specific features of the professional activity of a specialist. The name of the curriculum during its development may include a short name of the profiling.

Requirements for the content and implementation of curriculum components, as well as their ratio, are reflected in the relevant educational standards of higher education.

13. The minimum program for the candidate exam in a general education discipline and the minimum program for a differentiated test in a general education discipline are technical regulatory legal acts and determine the goals and objectives of studying the relevant general education discipline, requirements for the results of educational activities of students, cadets, listeners, the content of the general education discipline, list of educational and other publications.

Minimum programs of candidate examinations in general education disciplines and minimum programs of differentiated tests in general education disciplines are developed by educational institutions, organizations implementing

educational programs of science-oriented education, and are approved by the Ministry of Education in the manner established by it.

14. The individual work plan of a master's student, student provides for a training program for a master's student, student of a master's thesis.

Individual work plans of undergraduate students and trainees are developed by scientific supervisors of undergraduate students and trainees with the participation of students on the basis of curricula of educational institutions in specialties and are approved by heads of educational institutions.

Article 213. Educational and methodological associations in the field of higher education

1. To improve the scientific and methodological support of higher education, including in accordance with the needs of economic and social sectors, when implementing educational programs of higher education, the Ministry of Education may create educational and methodological associations in the field of higher education.

2. Educational and methodological associations in the field of higher education may include pedagogical and scientific workers of institutions of higher education, scientific organizations, representatives of state bodies, other organizations interested in training specialists in certain groups of specialties.

3. The main functions of educational and methodological associations in the field of higher education are:

3.1. participation in the optimization of specialties and qualifications;

3.2. participation in the development and improvement of educational standards of higher education;

3.3. participation in the development and improvement of curricula and curricula of educational programs of higher education;

3.4. ensuring interaction with educational and methodological associations in the field of secondary special education in the development and improvement of educational program documentation of educational programs of higher education integrated with educational programs of secondary special education;

3.5. Recommendation of an educational and methodological manual, manual, workshop, educational visual manual as an appropriate type of educational publication;

3.6. Preparation of a conclusion on the possibility of opening training in higher education specialties;

3.7. holding consultations with interested organizations on ensuring that higher education meets the modern needs of economic and social sectors;

3.8. Conducting consultations for higher education institutions on issues of improvement of higher education.

4. Decisions of educational and methodological associations in the field of higher education are advisory in nature.

5. Educational and methodological associations in the field of higher education are created and function on the basis of higher education institutions. The list of educational and methodological associations in the field of higher education and

institutions of higher education on the basis of which they are created and function is established by the Ministry of Education.

6. The activities of the educational and methodological association in the field of higher education are provided by the institution of higher education on the basis of which it was created. To ensure the activities of educational and methodological associations in the field of higher education, centers for the development and coordination of scientific and methodological support of relevant profiles of education and areas of education may be created in higher education institutions on the basis of which they are created.

7. To coordinate the activities of educational and methodological associations in the field of higher education, the Ministry of Education may create a coordinating scientific and methodological council of educational and methodological associations in the field of higher education.

Activities of the Ministry of Education of the Republic of Belarus, the Republican Institute of Higher Education on planning, coordination and analysis of innovative work in higher education institutions

The Ministry of Education of the Republic of Belarus and, within its structure, the Department of Science and Innovation Activity of the Republic of Belarus implement state scientific, scientific-technical and innovation policy in the education system.

The main tasks of the Department are:

- Regulatory, methodological and organizational support for scientific, scientific, technical and innovative activities in the system of the Ministry of Education;
- Organizational, methodological and financial support for planning and implementation in institutions subordinate to the Ministry of Education, research and development work;
- Organizational and methodological support for the creation and coordination of innovative structures;
- Organizational and methodological support for the development of international scientific and technical cooperation;
- Organization of exhibition activities of higher education institutions and scientific organizations;
- Ensuring the development and effective use of the material and technical base of higher education institutions in the interests of scientific, scientific-technical and innovative activities;
- Regulatory, methodological and organizational support for the training of highly qualified scientific workers in institutions of the Ministry of Education;
- Development of youth science, research work of students;
- Ensuring the activities of the Special Fund of the President of the Republic of Belarus.

In accordance with the tasks assigned to it, the Department performs the following functions:

- Coordination of the activities of subordinate institutions of higher education and scientific organizations on the implementation of scientific, scientific-technical and innovative activities and the training of highly qualified researchers;
- Assistance in the creation of innovative structures, scientific laboratories, small innovative enterprises on the basis of higher education institutions, methodological support for the organization of innovative structures;
- Organization and coordination of work on the implementation and financing of scientific research conducted within the framework of state scientific research programs, state scientific and technical programs, presidential, industry and regional programs, international scientific and technical projects carried out within the framework of international treaties of the Republic of Belarus, innovation projects, individual research projects, industry R&D, trilateral agreements, grants for the implementation of research by doctoral students, postgraduate students and students;
- Organization of work on financing scientific, scientific and technical events and participation in international scientific and technical events abroad, preparation and publication of monographs, development of material and technical base of science;
- Support of documents submitted by institutions of higher education and scientific organizations for the State Prize of the Republic of Belarus in the field of science and technology;
- Organization of targeted training of highly qualified researchers in accordance with the needs of subordinate institutions;
- Organization of work on the formation and presentation of collective expositions of the Ministry of Education in the sections of scientific and technical developments at exhibitions-fairs in the Republic of Belarus and abroad;
- Coordination of patent and licensing work in institutions of higher education and scientific organizations; Organizational and methodological support on the use of intellectual property objects in the creation of competitive products and commercialization of the results of intellectual activity;
- Organization of work on updating the material and technical base of science, creation of centers for collective use, equipping them with unique scientific instruments and equipment;
- Organization of work to ensure the activities of the Council of the Special Fund of the President of the Republic of Belarus for social support of gifted students.

The problem of updating the quality of education is closely related to the trend of technologization of the educational process. The new quality of education should reflect the processes of informatization of science and production, modern means of communication, and requires new ways of thinking, its algorithmization, as well as the effectiveness of the educational process. The organization of the educational process that provides general education of a new quality requires a creative approach, a rethinking of the relations between the subjects of education, significant efforts, as well as material and technical costs. Technologization of education as a promising direction of school development reflects the interests not only of direct participants in the educational process, but the requests of modern society and the requirements of

the state to the level of training of graduates capable of professional education, labor and social activity, successful socialization.

Technologization of the pedagogical process is a trend of its development, which is aimed at increasing the efficiency of the educational process, guaranteeing that students achieve the planned learning results.

Any human activity has two levels: the first is technological ("how it is done"), the second is labor ("how to do it" or "how I will do it"). Technology is always developed and designed in advance. Planning of the labor process is carried out on the basis of technology. Technology is objective, it does not depend on the personal properties of the person implementing it.

If we consider technology as a part of science that studies the methods of teaching, upbringing and education, then we can imagine its place as follows: pedagogical theory – pedagogical technology – pedagogical practice. That is, pedagogical technology is, as it were, a connecting link between theory and practice. In order to use theoretical provisions in practice, they need to be technologized and described in the form of activity procedures. If we consider technology at the level of an educational institution, then it will cover the entire process from setting a goal to diagnosing the result. In other words, technology is part of the pedagogical system of a school (educational institution), a set of methods for solving the pedagogical problem of general or professional education.

If we consider technology at the level of activity of an individual teacher, then it will act as a method of this activity, a method that gives a high result. This is the most common interpretation of pedagogical technology.

Since the pedagogical process always involves two parties – the teacher and the student, then in the technology of teaching as a procedure of activity, two “layers” can be distinguished: the first (internal) is the student’s activity, the second (external) is the teacher’s activity. The “internal layer” of the technology of teaching is the interaction of the content of teaching (“tool”) and the student (“material”), in the process of which its transformation occurs – the actual technological process. The “external layer” of the technology of teaching is the activity of implementing the actual technological process in specific conditions.

Topic 1.2 Technologization of educational activities as a way to improve the quality of higher education

The problem of updating the quality of education is closely related to the trend of technologization of the educational process. The new quality of education should reflect the processes of informatization of science and production, modern means of communication, and requires new ways of thinking, its algorithmization, as well as the effectiveness of the educational process. The organization of the educational process that provides general education of a new quality requires a creative approach, a rethinking of the relations between the subjects of education, significant efforts, as well as material and technical costs. Technologization of education as a promising direction of school development reflects the interests not only of direct participants in the educational process, but the requests of modern society and the requirements of

the state to the level of training of graduates capable of professional education, labor and social activity, and successful socialization.

In its development, the idea of pedagogical technology has gone through a number of stages.

The first stage is connected with the idea of J.A. Komensky to make education “technical”, that is, such that everything that is taught cannot fail to be successful. This is how the most important feature of pedagogical technology was formulated– the guaranteed result. The mechanism of training that leads to the planned results, J.A. Komensky called "didactic machine". For it it is important: to define the goals; to designate the means of achieving these goals; to find the rules of using these means. A peculiar module is emerging, which acts as the core of any pedagogical technology: goal - means - rules of their use - result. But Komensky did not use the term "pedagogical technology" itself.

The second stage. The term "pedagogical technology" first appeared in the 20s of the 20th century in works on pedology based on works on reflexology (I.P. Pavlov, V.M. Bekhterev, A.A. Ukhtomsky, S.T. Shatsky).

The birth of the idea of pedagogical technology is also associated with the activities of A.S. Makarenko. In his "Pedagogical Poem," he wrote that "our pedagogical production has never been based on technological logic, but always on the logic of moral preaching." He believed that this is why we simply do not have all the important departments of pedagogical production: technological process, accounting of operations, design work, use of designers and devices, standardization, control, tolerances and rejection.

At the same time, another concept spread-"pedagogical technique", which in the "Pedagogical Encyclopedia" of the 30s was defined as "a set of techniques and means aimed at a clear and effective organization of educational sessions." Pedagogical technology in the 30s included the ability to operate educational and laboratory equipment, use visual aids, and technical teaching aids. This approach to the interpretation of pedagogical technology was most widespread in the United States, where audio-visual teaching aids (tape recorder, cinema, radio, exercise machines) were first used.

Third stage. In the mid-1950s, a special "technological" approach to the construction of the learning process itself emerged. Pedagogical technologies were recognized as a professional category. In 1954, B.F. Skinner substantiated the concept of programmed learning, based on learning according to the "stimulus-response" scheme. The essence of this approach lies in the idea of complete control over the student's work.

Skinner's programmed learning model offered the teacher a linear technology of step-by-step learning (topic - steps - frames), which provided feedback, that is, immediate control over the correctness of the implementation of each task and a return to the previous step in case of an error.

In 1961, Skinner's follower D. Finn proposed a new term: "instructional technology." He organized a department of the same name at the University of Southern California.

In 1958, the Skinner-Finn technology was improved by N.A. Crowder, who proposed a branched scheme of programmed learning with multiple choice of answers from a number of suggested answers and appropriate feedback depending on the degree of correctness of the answer. Teaching technology has become adaptive.

The struggle between the Skinnerians and the Crowderians, which continued throughout the 1960s, ended in a compromise. The result is a combined technology of programmed learning, combining the seeds of linear and branched technology.

In the mid-1960s, the content of the concept of "pedagogical technology" was widely discussed in the pedagogical press abroad and at international conferences, where two directions of its interpretation were identified depending on the level and results of research in this area in various countries. Supporters of the first continued to associate technologies with the use of TSE (technology in education).

This approach was followed for a long time in the USSR, although the concept of "technology" was not used in the USSR at that time for ideological reasons. In 1965, the Research Institute of School Equipment and TSO was organized under the USSR Academy of Pedagogical Sciences. The agreement concluded with UNESCO and the UN Development Program defined the main task of this center - the production of new modern materials on teaching technology and the creation of a system for training specialists, the development of necessary scientific research.

Representatives of the second direction saw the main thing in increasing the efficiency of the organization of the educational process (technology of education) and overcoming the lag of pedagogical ideas from the rapid development of technology. Thus, the first direction was designated as "technical means in teaching", the second, which arose a little later, as "technology of teaching" or "technology of the educational process".

Mass development and introduction of teaching technologies into school practice began in the 1960s and 1970s. in Europe and the USA and is associated with the works of B. Bloom, J. Bruner, G. Geiss, V. Cascarelli, J. Caroll, D. Hamblin. In Soviet pedagogy, the analysis of the experience of foreign authors is summarized in the studies of T.A. Ilinoy, M.V. Clarina.

The result of this stage: recognition of PT as an object of study and a rapid growth in the number of universities developing their own training programs for specialists in the field of PT. In 1980, 788 faculties in the United States trained students in PT.

The fourth stage (1980s-1990s) is associated with the recognition of PT as a branch of theoretical knowledge in pedagogy. The second approach (technology of education) completely prevailed. The problem of technology has become one of the most discussed in pedagogy. However, scientists have not reached a common understanding of the term "pedagogical technology". There are dozens of definitions of pedagogical technology, which differ significantly from each other.

Table 1.1 Post requirements
Definition of the concept of "pedagogical technology"

Definition of concept "Pedagogical Technology" (PT)	Author
PT is a systematic method of planning, applying and evaluating the process of learning and learning (by taking into account human and technical resources and interacting between them to achieve a more effective form of education)	UNESCO Glossary
PT is a special set and layout of forms, methods, teaching techniques, educational tools; In other words, the organizational and methodological tools of the pedagogical process	B.T. Likhachev
PT is a project of a certain pedagogical system implemented in practice	V.P. Bespalko
PT is a scientific substantiation of the nature of the pedagogical impact on the student in the process of interaction with him, a scientific and pedagogical substantiation of the system of professional skills of the teacher, allowing a subtle touch to the personality of the student	N.E. Shchurkova

The use of modern pedagogical technologies in the educational process of higher education institutions creates completely new opportunities for the implementation of didactic principles of individualization and differentiation of education, has a positive effect on the development of students' cognitive activity, their creative activity, consciousness, and implements the conditions for the transition from learning to self-education.

The effectiveness of the use of pedagogical technologies in the educational process is confirmed by the research works of a number of authors: G.K. Selevko, V.I. Andreeva, V.P. Bespalko, V.I. Bogolyubova, M.V. Clarina, V.Yu. Pityukova, V.A. Slastenina, Y.A. Savelyeva and others. Today, a comprehensive theoretical development of the problem of using modern pedagogical technologies in the professional training of a specialist in higher school is gaining special sharpness and significance.

Thus, modern pedagogical teaching technology is characterized by the following positions:

- An organic part of pedagogical technology are diagnostic procedures containing criteria, indicators and tools for measuring performance results;
- Step-by-step planning and consistent implementation of elements of pedagogical technology must, on the one hand, be reproduced by any teacher and, on the other, guarantee the achievement of planned results by all students;
- The technological chain of actions and operations is built strictly in accordance with target settings, which have the form of a specific expected result;
- Technology is developed under a specific pedagogical plan, it is based on a certain methodological, philosophical position of the author;
- The functioning of technology provides for the interconnected activities of the teacher and students on a contractual basis, taking into account the principles of

individualization and differentiation, the optimal realization of human and technical capabilities, the use of dialogue and communication.

Table 1.2

Definition of the concept of "innovative pedagogical technology"

Definition of IPT	Author
IPT is a systematic methodology for creating, applying and forming knowledge and its connections with technical and human resources, setting itself the task of increasing the efficiency of forms of training in the process of learning and acquiring knowledge	UNESCO Glossary
IPT is a project of certain pedagogical activity consistently implemented in practice, the main indicator of which is a progressive beginning in comparison with established traditions and mass practice	V.P. Bespalko

One of the main *features* of innovative technology is that its development and application require high activity of the teacher and the student. The activity of the first is manifested in the fact that he knows well the psychological and personal characteristics of his students and on this basis makes individual adjustments to the technological process. The activity of students is manifested in increasing independence, that is, in a technologized process of interaction.

Consequently, innovative pedagogical technology can be considered as a technology of a particular type, which implies ordered, planned for a certain project and sequentially implemented actions, operations and procedures that instrumentally ensure the achievement of the predicted goal in working with a person or group in certain environmental conditions. The concept of "methodology" means the procedure of using a set of methods and techniques of teaching and upbringing, regardless of the person carrying them out.

Unlike methodology, PT:

- can be described as a chain of pedagogical actions, operations (i.e. as an algorithm);
- involves the development of the content and methods of organizing the activities of not only the teacher, but also the students;
- is developed on the basis of a specific methodological (philosophical, psychological) concept;
- deprived of many "ifs" (if the teacher is talented, if the students are capable, etc.).

Sometimes methods are part of technologies, and sometimes, on the contrary, certain technologies are part of teaching or education methods.

Methodological requirements for the development of pedagogical technology:

- Reproducibility (the ability to reproduce the technology by other teachers);
- Conceptuality (reliance on scientific concepts);
- Systematicness (logical relationship of parts and structural and content integrity of technology, giving it specified qualities);
- Manageability (diagnostic goal setting, planning and design, variation of funds);
- Efficiency (optimality of time and economic costs to achieve a certain standard).

Table 1.3

Differences between pedagogical technology and teaching methods

Criterion of comparison	Methodology	PT
Sign	Availability of prompt feedback and correction of the learning (upbringing) process	Diagnostic criteria, indicators and tools for measuring performance results
Preliminary design	Does not require preliminary design, since the subject is well known to the teacher, he has conducted a class on this topic many times	Requires careful development of each lesson, each topic
Goal formulation	Through their own activities or through the content being studied	Through student actions that are the expected outcome of the lesson or the entire topic
Control	– Episodic control (students are interviewed on different topics on different days); – Final control at the end of the topic	– Objective systematic control of the quality of education; – Diagnostics of personality development of each student during the educational process

Components of pedagogical technology (PT):

- The goal of PT (to increase the efficiency of the educational process, guarantee the achievement of planned learning results);
- Conceptual part of PT (scientific basis of technology, pedagogical ideas that are embedded in its foundation);
- Content part of PT (general and specific goals, content of educational material);
- Procedural part of PT (organization of the educational process; methods and forms of educational activities of students; methods and forms of teacher's work; teacher's activities in managing the process of assimilation of material; diagnostics of the educational process);
- Diagnostic part of PT (the process of studying changes in the state of participants in the pedagogical process, pedagogical activity, pedagogical interaction).

The effectiveness of pedagogical technology is assessed taking into account the standards of manufacturability of the pedagogical process as a whole. A teacher who has pedagogical technologies characterized as a tool of pedagogy can be called a master of his craft. But at the same time, the diversity of pedagogical technologies puts the teacher before a difficult choice.

Based on practical application, pedagogical technology becomes more effective if it has a complete description and the necessary didactic means for its successful implementation.

Table 1.4

Classification of pedagogical technologies

Classification by...	PT types
level of application	– general pedagogical (characterized by the integrity of the pedagogical process in the region, educational institution, at a certain level of education); – private subject (a set of means and methods for implementing a certain content of training within a specific discipline); – local or modular (used in separate parts of the educational process)
organizational forms	group; individual; frontal
type of cognitive management	– traditional (classical lecture, using TSO, learning from a book); – differentiated (small group system, "tutor" system); – programmed (computer, software, "consultant" system)
orientation to personal structures	– information (formation of university knowledge, skills and abilities); – operational (provide the formation of mental actions); – applied (provide the formation of the effective and practical sphere of the personality); – self-development (aimed at forming ways of mental actions); – heuristic (develop the creative abilities of students)
nature of content and structure	educational; humanistic; training; general education; professional

Table 1.5

Criteria of the technological component of the pedagogical process

Criterion	Description
Reproducibility	Possibility of re-application, use of technology in higher education institutions, where specialists in the same specialty are trained
Availability of concept	Reliance on a philosophical, scientific, didactic concept, which includes the justification of general educational goals
Controllability	Possibility of goal setting, planning, design, step-by-step diagnostics
Clear system	Availability of integrity, interrelationship between all elements of the learning process
Efficiency	Characterized by the learning results obtained, the resources expended, the achievement of the requirements of a certain educational standard

Module 2: Topics 2.1-2.3

Topic 2.1 Technologies for organizing the main types of activities of teachers and students in higher education institutions

Main directions of modernization of the educational process of higher education institutions

Resolution of the Council of Ministers of the Republic of Belarus No. 683 of November 30, 2021 The Concept for the Development of the Education System of the Republic of Belarus until 2030 was approved (National Legal Internet Portal of the Republic of Belarus, 12/02/2021, 5/49678). It considers global trends in the development of the education system; The current state of the education system of the Republic of Belarus; Goals, objectives, directions of development of the education system of the Republic of Belarus for the period until 2030; Stages and results of the implementation of the concept.

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The United Nations 2030 Sustainable Development Goals for education, which aim to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, are fundamental directions for the development of national education systems worldwide.

One of the main trends in the development of education in the world includes:

1) *humanization* or *orientation to the student's personality* for the purpose of the most complete disclosure of his abilities and satisfaction of his educational needs, which is manifested in the shift of emphasis from pedagogical activity to productive educational and cognitive activity of the student:

- Transition from predominantly informative forms of training to problem-based, research and project-based training through the use of reserves of independent work, creating conditions for self-affirmation, self-realization and self-determination of the individual;
- In personality-oriented education, strictly regulated controlled methods of organizing the pedagogical process are replaced by creative, developing, activating ways of the personality, and the positions of the teacher and the student are transformed into personal equality, into positions of cooperation;
- The purpose of modern education is to help students acquire the competencies necessary for successful socialization and responsible decision-making with which a person's life is connected, including when making a professional choice;

2) *Competency approach* in education as key (selection of core competencies is carried out on the basis of basic principles of human rights, sustainable development goals);

3) Inseparability of education from education:

- Characteristic features of such education are humanization (designed to form spirituality, culture, holistic development of all aspects of the individual) and national orientation (ensuring a combination of education with history and folk traditions, preservation and enrichment of national values);

4) Openness and continuity of education:

- In most countries, educational programs set a basic core of knowledge, which is subsequently supplemented depending on human needs, therefore, the continuity of education, its transformation into a process that lasts throughout a person's life, is also a global trend in the development of educational systems;
- Ensuring the achievement of integrity and continuity in teaching and upbringing;

5) *dissemination and deepening of fundamental training* while simultaneously reducing the volume of general and compulsory disciplines (due to strict selection of material and systematic analysis of its content):

- This trend is due to the avalanche-like increase in the volume of information and the need to be able to work with it, which contributes to the transition from factual to methodological form of training.

Foreign educational systems are well adapted to these trends, as their educational programs are traditionally multi-level and diverse, close to the real needs of specialists of the appropriate level of training. Nevertheless, in many countries there is an acute problem of accessibility to education for all segments of the population and of overcoming restrictions in obtaining education on one or another grounds (gender, social, national, religious affiliation).

The most general trends in the development of higher education, the priority of which varies for different regions and countries, can also be identified as the following:

- *Pragmatization* (determines the development of higher education in the direction of the most demanded spheres of life of society);
- *Transdisciplinarity* (manifested in a comprehensive solution of interdisciplinary educational problems);
- *Informatization* of education (creates conditions for the formation of a unified scientific and educational space and the active development of distance learning);
- *Individualization* (based on taking into account the individual characteristics of the student, relies on his abilities, self-disclosure and professional self-actualization).

The digital transformation of society, the transition to the fourth industrial revolution "Industry 4.0" and widespread automation contribute to a forced change in specialization and retraining of labor market participants, which entails the expansion of the offered additional education services.

Almost all over the world, targeted funding of higher education systems related to ensuring intellectual superiority and world leadership in the implementation and

use of new science-intensive technologies, hence leadership in the economy, has been supported.

National education of the Republic of Belarus is traditionally one of the highest values of the Belarusian people. State policy in the field of education is based on such leading principles as:

- State-public nature of management;
- Priority of universal human values, humanistic nature of education;
- Ensuring the principle of justice, equal access to education;
- Inclusion in education; Improving the quality of education for everyone.

The education system of the Republic of Belarus provides students with basic, additional and special education. Basic education includes preschool, general secondary, vocational, special secondary, higher and postgraduate education. Additional education is divided into additional education of children and youth, additional education of adults. Classification of educational levels of the Republic of Belarus corresponds to the international standard qualification of education.

Higher education.

The goal of development is to improve the quality and competitiveness of higher education in accordance with the current and future requirements of the national economy and social sphere, world trends in economic and scientific and technical development.

Main tasks: to ensure an improvement in the quality of practice-oriented training of specialists, the effectiveness of interaction with personnel-ordering organizations; Continue the formation of innovative infrastructure of university science, increase the effectiveness of research activities in higher education institutions; Create conditions for attracting young people to scientific and innovative activities and teaching work; Increase the attractiveness of higher education in the Republic of Belarus and the competitiveness of the national higher education at the international level.

Ways to achieve the goal and solve the main tasks:

- intensification of training of highly qualified scientific personnel at higher educational institutions;
- Updating the content of higher education, educational standards and scientific and methodological support in accordance with the changing needs of the economy and social sphere, taking into account global trends in the field of higher education;
- Implementation of the "University 4.0" model and elements of the "University 5.0" model;
- Identification of promising scientific directions;
- Increasing the publication activity of domestic authors in authoritative international scientific journals;
- Increasing the efficiency of interaction with organizations-customers of personnel, the formation of universal and professional competencies in demand in the labor market among graduates of higher education institutions;
- Implementation of international scientific and educational projects.

- Creation of new and development of existing elements of higher education institutions innovation infrastructure (technoparks, technology transfer centers, etc.);
- Preservation of existing and creation of new scientific schools, strengthening their personnel potential by attracting gifted young people to scientific, innovative and teaching activities;
- Specialization of scientific research in each higher education institutions, their orientation to the needs of specific production and regional development;
- Increasing the share of areas and specialties with instruction in foreign languages;
- Increase in the number of educational programs implemented in cooperation with foreign educational institutions.

Active and interactive teaching methods, their role in organizing educational and cognitive activities of students

Features of technologization of the educational process in a higher educational institution:

1. Digital Learning Platforms: Integrating online platforms such as Learning Management Systems (LMS) (e.g. Moodle, Blackboard) makes it easier to deliver, track and manage educational courses. These platforms support a wide range of digital content and interactive tools, improving the quality of learning.

2. Interactive content. The use of multimedia resources such as videos, podcasts and interactive simulations makes learning more engaging and accessible. This includes virtual labs, digital textbooks and interactive learning modules to suit different learning styles.

3. Blended learning. By combining traditional face-to-face learning with online learning, blended learning models provide flexibility and convenience. This approach allows students to benefit from both direct interaction with faculty and the flexibility of online resources.

4. Technologies of adaptive learning. These technologies personalize the learning process by adjusting content and assessments based on individual learners' progress and pace of learning. Examples include intelligent learning systems and personalized learning environments.

5. Data analytics: Using big data and analytics to monitor and improve student performance. Data-driven information helps identify at-risk learners, tailor learning, and improve the overall educational process through informed decision making.

6. Virtual and augmented reality (VR/AR). VR and AR technologies provide an immersive learning experience, allowing learners to explore and interact with complex subjects in a simulated environment. This is especially useful in fields such as medicine, engineering, and the natural sciences.

7. Online assessments and e-portfolios. Digital assessment tools and e-portfolios enable continuous and comprehensive assessment of student performance. These tools support a variety of assessment formats, including quizzes, assignments, peer assessments, and project-based assessments.

8. Collaboration tools. Tools such as discussion forums, social networks, and collaboration software (e.g. Google Workspace, Microsoft Teams) facilitate communication and teamwork between students and faculty, creating a collaborative learning environment.

9. Artificial intelligence (AI) and machine learning. AI-based tools, such as chatbots and virtual assistants, provide support for administrative tasks and student requests, increasing the efficiency of the educational process. AI also enables advanced research and learning analytics.

10. Distance learning opportunities. With the development of video conferencing and streaming technology, distance learning has become more effective and widespread. Institutions can offer courses to a global audience, overcoming geographical barriers and expanding educational opportunities.

11. Professional development of teachers. Ongoing training and upgrading of teachers in the use of new technologies ensures that they will be prepared to effectively integrate these tools into their pedagogical practice.

12.Accessibility and inclusion: Technologization ensures that educational resources are accessible to learners with disabilities through features such as screen readers, captioning, and adaptive technologies, creating an inclusive learning environment.

The active method is a way of interaction between students and the teacher during a training session, in which they are not passive listeners, but active participants.

Active teaching methods are aimed at the mental and cognitive activity of students. The following teaching methods are active:

- Verbal (story, conversation, reading);
- Visual (demonstration of textbooks, experiences);
- Problem-searching.

Active teaching methods create conditions for the formation and consolidation of professional knowledge, skills and abilities in students. They have a great impact on preparing students for future professional activities. Arm students with the basic knowledge necessary for a specialist in his qualifications, form professional skills and abilities, since theory is needed for practice, and theory-practice.

Interactive learning methods are joint learning (cooperative learning), in which students and teacher are subjects of learning.

Interactivity is not just a process of mutual influence, but a specially organized cognitive activity with a pronounced social orientation.

All participants in the educational process interact with each other, exchange information, jointly solve problems, model situations, evaluate the actions of others and their own behavior. Students are immersed in a real atmosphere of business cooperation to solve problems.

Interactive teaching methods allow to use not only the human consciousness, but also his feelings, emotions, volitional qualities. This allows you to increase the percentage of absorption of the material.

The main advantages of interactive teaching methods:

- Activation of thinking;
- High level of information assimilation through emotional and value attitude to activity;
- Personal growth;
- Learning through mutual exchange of experience;
- Setting new problems; Creating situations of uncertainty for participants, etc.;
- Formation of teamwork skills, increasing the activity of everyone;
- Formation of skills to listen and hear.

Disadvantages of interactive teaching methods:

- The risk of personal ambitions clashing;
- High competence of the teacher (trainer);
- Length of time, etc.

Interactive learning methods are divided into two categories:

- Simulation-game (business games (educational, research); game design) and non-game (analysis of specific situations; simulation exercises, training);
- Non-simulation (problem seminars; thematic discussions; problem lectures; round tables; heuristic teaching methods (brainstorming, etc.)).

When using simulation learning methods, an unreal environment or situation is created, which helps students adapt to the real professional environment.

Non-game simulation teaching methods include the following: solving production and situational problems and exercises, case method, microsituation method, incident method, game design, information maze, group discussions, viewing video recordings of games with analysis and discussion, modeling of specific problems, etc.

Game simulation teaching methods include the following: "acting out" situations in roles, simulation games, role-playing, business, organizational-activity, innovative, search-and-probation, problem-business games, creative interactive methods (synectics method, association method, Delphi method), computer game simulation methods, etc.

The need to use interactive teaching methods can be explained by the fact that no more than 20% of the information is absorbed during lecture presentation, 75% during discussion training, and about 90% of the information is absorbed during, for example, a business game.

Use of reflexive technologies in training sessions. The practice of organizing reflexive processes in education is based on the involvement of the creative potential of a person in all structures of his activity. It should be noted that it is the activation of reflection, and not the direct correction of the subject-operational side of activity in the form of a strict instruction, prompt or guiding tasks that contributes to the manifestation of phenomena that arise in the learning process when solving problems. Technologies of reflexive learning are aimed at organizing the processes of rethinking and constructive restructuring of outdated stereotypes, norms of thinking, communication, interaction that hinder the development of activities. That is why the main emphasis in psychological and pedagogical influences is important to put on the

development of ways to activate reflexive mechanisms that are part of the auxiliary environment of the cognitive process and determine the plan of communication, group interaction in the joint search for a solution.

The main principles that determine the practice of organizing reflective learning are:

• "problematic" - those contradictions that are specifically included by the teacher in the student's reasoning act as driving forces for the development of dialogue;

• "reflexivity" - constant understanding and rethinking by students of the contradictions they reveal;

• "Personality" - the teacher's focus on ensuring the possibility of full manifestation of the student in his reasoning about the contradictions encountered, as well as on the development of abilities to independently solve creative, professional problems.

In the most reflexive process, the following stages can be distinguished:

— "stop", fixing some fragment of activity;

— analysis of the problems contained in this situation;

— development of ways of constructive restructuring of activities and solving problems.

There are also various ways of forming a reflective environment that encourages the development of processes of comprehension of activity. Each method is focused on the scale of the group participating in the training:

1) micro scale - one or two people participate in reflection (one as a motivator for the other's reflection), methods: cultivating reflexive abilities and reflex interviews;

2) medium scale - the reflective process involves groups of two to twenty people, methods: reflexive polylogue, social-psychological training;

3) macro scale - the subject of reflection is a group of more than 20 people, methods: reflexive polylogue (with a special procedure for organizing mixed groups), collective thought activity methodology.

Pedagogical goal setting
In the conditions of using innovative pedagogical approaches and technologies

Various aspects of pedagogical goal setting are presented in the works of the following scientists:

- Theoretical understanding of pedagogical goals (V.P. Bespalko, V.V. Kraevsky, O.E. Lebedev, I.Ya. Lerner, etc.);
- Goal as a component of professional activity (S.P. Ivanova, N.V. Kuzmina, Yu.N. Kulyutkin, L.M. Mitina, G.S. Sukhobskaya);
- Goal as a necessary component of personality-oriented education (I.Yu. Aleksashina, S.G. Vershlovsky, I.A. Kolesnikova, O.K. Lebedev, L.M. Perminova, V.E. Radionov, etc.);
- The goal as a subject of holistic systematic study (N.Y. Korystyleva).

Table 2.1
Goals in education

Statement	Author
In the goal of education, the interests of society and the interests of the individual find concentrated expression	V.A. Slastenin
The goal of learning is a system-forming factor of the pedagogical system	I.F. Isaev
Pedagogical goals determine the general strategy of the pedagogical process, and pedagogical goal setting is part of forecasting and designing the pedagogical process	E.N. Shiyanov
The purpose of pedagogical activity is to manage the pedagogical processes of formation and development of a holistic person, as well as his individual properties and qualities.	N.M. Borytko

Goal-setting is a key and universal competence of modern man, associated with his personal qualities: purposefulness and purposefulness, characterizing a person with an active life position as a professional and as a citizen.

It is important to organize the teaching process in such a way that students in the system master meta-subject goal-setting skills:

- Independently determine the goals of their training;
- Set and formulate new tasks for yourself in cognitive activities;
- Correlate your actions with the planned results.

The study of a specific academic discipline requires pedagogically and methodically competent goal-setting, which will ensure the productivity and efficiency of the learning process.

Goal setting as a process of forming goals in the field of education and the educational process takes place at the levels of: a) modern society and the state (Code of the Republic of Belarus on Education 2022), b) educational organization (educational institution), c) educational activity of a specific teacher (in its basis-pedagogical activity in the organization of the educational process: education and training).

The concept of "goal formation" is used in pedagogical literature to reflect the subjective nature of "creation" of goals in education and the subjective nature of their content (it is determined and formulated by specialists in the field of pedagogy and education), interdependence and interconnectedness, hierarchy, systematicness of educational goals.

Each of these levels of goal formation determines a more specific level of goals, which is part of the hierarchy of educational goals, the content and essence of which is integrated content projected on the educational process as a holistic pedagogical process. In other words, goal formation creates and represents a hierarchy of goals in higher education.

We use the concept of "pedagogical goal setting", i.e.The process and result of defining, formulating and setting goals and objectives (expected results), initiated by

the teacher and accepted by students in the pedagogical process, which determines all other components of this process (content, methods and technologies of teaching, assessment, reflection) as a pedagogical system.

In this concept, the pedagogical emphasis is placed on the fact that goal-setting occurs: a) in the pedagogical process, which is the core of the educational process; b) with a pedagogical purpose, which should be implemented by participants in the educational process; c) in the pedagogical process as a pedagogical system, and therefore in the focus of the hierarchy of educational goals at different levels.

The pedagogical meaning of goal setting is connected with the fact that it is specially organized for the training, education and development of the student's personality. From the point of view of the activity approach to organizing the educational process in class, when setting pedagogical goals, it is important to observe the following sequence and relationship of lesson planning: goal-tasks-actions-result-assessment of results according to the goal.

The concepts of "competence" and "competency"

A.V. Hutorskaya reveals the difference between the concepts of "competence" and "competence".

Competence is a person's possession of the relevant competence, including his personal attitude towards it and the subject of activity.

Competency is a set of interrelated qualities of a person (knowledge, abilities, skills, methods of activity), set in relation to a certain range of subjects and processes necessary for high-quality productive activity in relation to them.

The list of competencies for each specialty is presented in the OSVO, the curriculum, which are referred to when drawing up training programs for academic disciplines.

The following abbreviations have been adopted to designate groups of competencies: UC – universal competencies, APC – advanced professional competencies, SC – specialized competencies.

For example, the curriculum of specialty 7-06-0111-01 "Scientific and pedagogical activities" (reg. number IISIPF29D-1/uch dated 04/18/2023) provides for the formation of the following competencies in students:

UC-1 Apply methods of scientific knowledge in research activities, generate and implement innovative ideas

UC-2 Solve research and innovation problems based on the application of information and communication technologies

UC-3 Carry out communications in a foreign language in an academic, scientific and professional environment for the implementation of research and innovation activities

UC-4 Provide communication, demonstrate leadership skills, be capable of team building and develop strategic goals and objectives

UC-5 Develop innovative receptivity and ability to innovate

UC-6 Be able to predict the conditions for implementing professional activities and solving professional problems in conditions of uncertainty

UC-7 Apply psychological and pedagogical methods and information and communication technologies in education and management

APC-1 Develop and implement new methods and technologies of teaching taking into account domestic and foreign experience, analyze the effectiveness of their use in the educational process

APC-2 Develop and implement project, research and innovation activities of the educational institution

SC-1 systematize the conceptual and scientific and methodological apparatus of pedagogy, modern concepts, models and strategies of teaching, upbringing and personal development and implement the educational process in the context of the developing information and educational environment

SC-2 Implement the educational process based on project activities, effective methods, techniques and means of education, motivation and productive pedagogical interaction

SC-3 Design an innovative educational environment of an educational institution

SC-4 Analyze the formation of various educational systems in historical retrospective and determine their significance for the development of modern education

SC-5 Diagnose the educational results of students and manage learning and upbringing processes

SC-6 Reflect on the results of one's own professional and pedagogical activities, develop programs for personal and professional self-development

SC-7 Carry out productive pedagogical communication, scientific, professional and social interaction

In the modern conditions of education reform, the status of the teacher, the teacher, his educational functions are radically changing, the requirements for his professional-pedagogical competence, the level of his professionalism are changing accordingly.

Personal competence has a certain structure, the components of which are associated with a person's ability to solve problems in everyday, professional or social life. The structure of competencies, in addition to activity (procedural) knowledge, skills and abilities, also includes the motivational and emotional-volitional spheres. An important component of competencies is experience-the integration into a single whole of individual actions, methods and techniques for solving problems learned by a person.

The content of teacher training of a particular specialty is presented in the qualification characteristic-a normative model of teacher competence, reflecting the scientifically based composition of professional knowledge, skills and abilities. Qualification characteristics are a set of generalized requirements for a teacher at the level of his theoretical and practical experience.

Main indicators of professional competence:

- Special professional knowledge, their compliance with the volume, structure, nature, requirements of professionalism at the modern level of development of science, technology, culture. The specific content of knowledge will depend on the specialty, its level and volume-on the category: the higher the level of professionalism, the broader and higher the competence of the teacher, and vice versa, the higher the level of competence, the more effective activities he can carry out in his professional field;
- Psychological and pedagogical knowledge is information from pedagogy and psychology about the essence of the teacher's work, about the features of pedagogical activity and communication, the personality of the teacher, about the psychological development of students, their age characteristics, etc.;
- Psychological and pedagogical skills-the ability to psychologically competently influence students in order to achieve a certain pedagogical result and implement knowledge.

M.A. Choshanov considers competence as a set of three characteristics:

- Knowledge mobility, possession of operational and mobile knowledge;
- Flexibility of the method, as the ability to apply one or another method that is most suitable for given conditions at a given time;
- Critical thinking is the ability to choose among many decisions the most optimal and argue against false ones.

During the analysis and study of the literature, the following definitions of the concepts of "competence" and "competency" can be given:

Competence is a set of knowledge, abilities, skills, methods of activity that generate the readiness of the future teacher to carry out professional activities in any (including non-standard) situation.

Competency is a set of formed competencies that make up the system of professionalism of a specialist in general or in a particular field of activity.

At the present time, there are many different positions in the literature regarding the structure of the professional competence of a teacher. G.M. Kodzhaspirova presents the professional competence of a teacher in the form of 10 groups of pedagogical skills of a teacher.

Table 2.2

Teacher skill groups

Skill group	**Teacher skills**
First group	• The ability to see a problem in a pedagogical situation and formulate it in the form of pedagogical tasks, when setting a pedagogical task, to focus on the student as an active participant in the educational process; • The ability to specify pedagogical tasks, make the optimal decision in any situation, foresee the near and distant results of solving such problems;
Second group	• Work with the content of educational material;

	• Ability to pedagogically interpret information; • Formation of students' educational and social skills, implementation of interdisciplinary connections; • Studying the state of mental functions of students, taking into account the educational opportunities of students, anticipating typical difficulties of students; • The ability to proceed from the motivation of students when planning and organizing the educational process; The ability to use combinations of forms of training and education, take into account the costs of energy and time of students and teachers;
Third group	• The ability to correlate students' difficulties with shortcomings in their work; Ability to create development plans for their pedagogical activities
Fourth group	• The ability to set a variety of communicative tasks, the most important of which is the creation of conditions of psychological safety in communication and the implementation of the internal reserves of the communication partner
Fifth group	• The ability to understand the position of another in communication, show interest in his personality, orientation to the development of the student's personality; • The ability to interpret and read his internal state according to the nuances of behavior, possession of means of non-verbal communication (facial expressions, gestures); • The ability to take the student's point of view and create an atmosphere of trust in communicating with another person (the student must feel like a unique full-fledged person); • Mastery of rhetoric techniques; • The use of organizing influences in comparison with evaluative and especially disciplinary influences; The predominance of a democratic style in the teaching process, the ability to treat certain aspects of the pedagogical situation with humor
Sixth group	• The ability to maintain a stable professional position of a teacher who understands the importance of his profession, i.e. Implementation and development of pedagogical abilities; • The ability to manage your emotional state, giving it a constructive, and not a destructive character; Awareness of one's own positive capabilities and the capabilities of students, which contributes to the strengthening of one's positive self-concept

Seventh Group	• Awareness of the perspective of one's own professional development, determination of individual style, maximum use of natural intellectual data
Eighth Group	• The ability to determine the knowledge acquired by students during the academic year; • The ability to determine the state of activities and skills, types of self-control and self-esteem in educational activities at the beginning and at the end of the year; Ability to stimulate readiness for self-study and continuous education
Ninth Group	• Assessment by the teacher of the upbringing and educability of students; • The ability to recognize from the behavior of students the consistency of moral norms and beliefs of students; • The teacher's ability to see the student's personality as a whole, the relationship between his thoughts and actions; • The ability to create conditions for stimulating underdeveloped personality traits.
Tenth group	• The integral ability of the teacher to evaluate his work as a whole; The ability to see cause-and-effect relationships between its tasks, goals, methods, means, conditions, results

Education as a pedagogical system.
Technology for preparing and conducting the main types of training sessions

The lecture is the main link of the didactic cycle of training. Its purpose is to form an indicative basis for the subsequent assimilation of educational material by students.

Advantages of the lecture:

- Creative communication of the lecturer with the audience, co-creation, emotional interaction;
- Lecture is a very economical way to obtain the basics of knowledge in general form;
- A lecture activates mental activity if it is well understood and carefully listened to, so the task of the lecturer is to develop the active attention of students, to cause the movement of their thoughts following the thought of the lecturer.

The learning process, beginning with lectures, continues with practical classes and deepens with independent work.

Lecture requirements:

- Moral side of lectures and teaching, scientific and informative (modern scientific level);
- Evidence and argumentation;

- The presence of a sufficient number of vivid, convincing examples, facts, justification, documents and scientific evidence, the emotionality of the form of presentation;
- Activating the thinking of listeners, asking questions for reflection;
- Clear structure and logic for disclosing consistently presented issues.

The criteria for assessing the quality of a lecture are based on the following requirements: derivation of the main ideas and provisions, emphasis on conclusions, repetition of them in various formulations; presentation in accessible and clear language, explanation of newly introduced terms and names; use of audiovisual didactic materials whenever possible.

A Seminar is a form of educational and practical classes, in which students or interns discuss reports and abstracts made by them based on the results of educational or scientific research under the guidance of a teacher.

The main goal of seminar classes is to provide students with the opportunity to master the skills and abilities of using theoretical knowledge in relation to the features of the studied field.

There are several types of educational seminars:

- interdisciplinary;
- problematic;
- thematic;
- orientational;
- systemic.

During the seminar, the orientation of students to group work and its evaluation plays a crucial role. Based on the results of the work, the teacher draws conclusions, reveals the possibility of students in scientific research.

Practical and laboratory classes. The process of studying in higher education includes practical classes. They are intended for in-depth study of the discipline. Their forms are varied.

Laboratory work and practical classes can be aimed at solving the following educational problems:

- generalization, systematization, deepening, consolidation of acquired theoretical knowledge on specific topics;
- formation of skills to apply acquired knowledge in practice,
- development of intellectual skills in future specialists: analytical, design, etc.;
- development of such professionally significant qualities as independence, responsibility, accuracy, creative initiative.

Main functions of laboratory work and practical classes:

- consolidation of theoretical knowledge in practice;
- acquisition of research work skills;
- acquisition of practical skills;
- application of theoretical knowledge to solve practical problems.

The leading didactic goal of laboratory work is experimental confirmation and verification of certain theoretical positions (patterns, dependencies).

The leading didactic goal of practical classes is the formation of practical skills-professional (the ability to perform certain actions, operations necessary in professional activities) or educational (the ability to solve educational problems necessary in subsequent educational activities).

In the process of laboratory and practical classes, students find confirmation of theoretical positions, are convinced of the presence of certain scientific patterns and dependencies, they also develop practical skills and abilities in the discipline, the ability to observe, compare, analyze, process empirical research data, establish dependencies, draw conclusions and generalizations, formalize research results.

Typical tasks for laboratory and practical classes are:

- demonstration experiment;
- individual tasks;
- group tasks;
- experiment in pairs (subgroups);
- solving situational problems;
- group discussion;
- business game simulating professional tasks.

The concepts of "current certification", "intermediate certification", "final certification" and their role in organizing the educational process.

Certification is an assessment of the level and quality of students' mastery of educational programs in a specific subject activity.

The purpose of certification is to identify the initial, current, intermediate and final level of development of theoretical knowledge, practical skills and abilities, their compliance with the predicted results of educational programs.

Current certification is an assessment of the quality of students' assimilation of the content of a specific educational program during the period of study after initial certification to intermediate (final) certification.

Intermediate certification is an assessment of the quality of students' assimilation of the content of a specific educational program based on the results of the academic period (stage, year of study).

Final certification is an assessment of the quality of students' assimilation of the level of achievements declared in educational programs upon completion of the entire educational course of the program.

According to Articles 209 and 210 of Chapter 38 "Certification of students, cadets, listeners when mastering the content of educational programs of higher education" of the Code of the Republic of Belarus on Education 2022, the following types of certification and their role in organizing the educational process are provided for.

Article 209. Current and intermediate certification of students, cadets, listeners in mastering the content of educational programs of higher education

1. Students, cadets, and listeners, when mastering the content of educational programs of higher education, undergo current and intermediate certification in

academic disciplines and modules of the curriculum of the educational institution in their specialty.

Students, cadets, and listeners, when mastering the content of educational programs of higher education, undergo intermediate certification in the practice of the curriculum of the educational institution in their specialty.

Students, cadets, listeners, when mastering the content of the educational program of a master's degree, a continuous educational program of higher education, studying general education disciplines, pass intermediate certification on them.

2. Current certification of students, cadets, listeners is carried out during the semester for the purpose of periodic monitoring and evaluation of the results of their educational activities in the academic discipline, module of the curriculum of the educational institution in the specialty studied in the semester.

3. Specific forms of current certification of students, cadets, listeners are determined by curricula for academic disciplines, modules of the curriculum of the educational institution in the specialty, individual work plan of a master's student, listener.

4. Current certification of students, cadets, listeners is carried out in accordance with the Rules for certification of students, cadets, listeners when mastering the content of educational programs of higher education and this Code. Features of the current certification of students when mastering the content of educational programs of higher education in specialties in the direction of education "Art" are determined by the Ministry of Culture.

5. Interim certification of students, cadets, listeners is carried out in order to assess the results of their educational activities for the semester in the academic discipline, general education discipline, module of the curriculum of the educational institution in the specialty studied in the semester, internship, implementation of the individual work plan of a master's student, listener.

Intermediate certification of students, cadets, listeners is carried out in accordance with the requirements of the relevant educational standard of higher education, educational program documentation of the educational program of higher education of the corresponding type.

6. The result of intermediate certification, expressed in receiving an unsatisfactory mark, or failure to appear for certification within the period established by the educational institution without a valid reason are academic debt.

Students, cadets, and trainees are obliged to liquidate academic debt in the manner determined by the rules for certification of students, cadets, and trainees when mastering the content of educational programs of higher education.

Students, cadets, listeners who have academic debt of no more than two academic disciplines, modules, on the practice of the curriculum of the educational institution in the specialty or who have an individual period for passing the intermediate certification falling for the next semester are transferred to the next semester conditionally.

7. Forms, conditions and procedure for conducting intermediate certification of students, cadets, trainees when mastering the content of educational programs of higher education, criteria for assessing the results of educational activities of

students, cadets, trainees, the procedure for conducting intermediate certification in the part not regulated by this Code, are determined by the rules for conducting certification of students, cadets, trainees when mastering the content of educational programs of higher education.

Article 210. Final certification of students, cadets, listeners in mastering the content of educational programs of higher education

1. Students, cadets, listeners upon completion of mastering the content of educational programs of higher education undergo final certification.

2. Final certification of students, cadets, listeners is carried out by state examination commissions.

3. Students, cadets, listeners who have not passed the final certification within the prescribed period for a valid reason are granted the right to pass the final certification in another period during the work of state examination commissions.

4. Forms, conditions for final certification of students, cadets, trainees when mastering the content of educational programs of higher education, criteria for assessing the results of educational activities of students, cadets, trainees, procedure and conditions for admission of students, cadets, trainees to final certification, procedure for creation and functioning of state examination commissions, procedure for conducting final certification in part not regulated by this Code, are determined by the rules for certification of students, cadets, trainees when mastering the content of educational programs of higher education.

For cadets, listeners, when mastering the content of educational programs of higher education in specialties for military formations and paramilitary organizations, the features of passing the final certification by the relevant state body subordinate and (or) accountable to the President of the Republic of Belarus, the republican state administration body may be established.

Topic 2.2 Characteristics of modern teaching technologies and conditions for their implementation in a higher education institution

The principle of activity in the learning process was and remains one of the main ones in didactics. This concept means the quality of activity that is characterized by a high level of motivation, a conscious need to acquire knowledge and skills, effectiveness and compliance with social norms.

This kind of activity in itself does not occur often, it is a consequence of targeted management pedagogical influences and the organization of the pedagogical environment, i.e. the applied pedagogical technology.

Any technology has means that activate and intensify the activities of students, in some technologies these means constitute the main idea and basis of the effectiveness of results.

Such technologies include game technologies, problem-based learning and communication technologies.

It is based on a person-centered approach. Which is:

– methodological orientation in pedagogical activity, developed on the basis of a humanistic worldview, making it possible, through reliance on a system of

interrelated concepts, ideas of humanistic pedagogy, humane methods of pedagogical actions, to ensure and support the processes of self-knowledge, self-realization of the student's personality, and the development of his individuality;

- consistent attitude of the teacher to the student as an individual, as an independent responsible subject of educational interaction;
- the teacher's individual approach to each student, helping him to realize himself as a person, to identify opportunities that stimulate self-realization.

The application of this approach presupposes the redistribution of subjective powers in the educational process – both the teacher and the student are equal subjects of the educational process; subject-subject, rather than subject-object, relations between students and teachers are formed in the educational process.

Current trends in education 2024:

- *technology integration*: continued integration of technology into classrooms with a focus on online learning, educational apps, and interactive tools.
- *social-emotional learning* (SEL): An increased focus on social-emotional learning to support learner well-being. SEL programs aim to develop skills such as self-awareness, resilience, recognizing the importance of emotional intelligence for academic success.
- *global and cultural competence*: a push for global and cultural competency education; institutions incorporate diverse perspectives into their curriculum, promoting cross-cultural understanding and preparing learners for a globalized world.
- *competency-based education*: the shift to competency-based education, with an emphasis on learners' mastery of specific skills rather than strict adherence to learning levels; This approach allows for more personalized and flexible learning trajectories.
- *faculty professional development*: Increase investment in faculty professional development to improve teaching strategies, integrate technology, and adapt to changing educational environments.
- *flexible learning environment*: create flexible learning environments that accommodate a variety of learning styles; institutions create flexible spaces, incorporate movable furniture, and conduct outdoor activities to support a variety of learning methods.

Technology of developmental learning. Developmental learning is the orientation of the educational process on the potential capabilities of a person and their reaction. The purpose of this type of training is to prepare students for the independent mastery of knowledge, the search for truth, as well as for independence in everyday life. That is, it is based on the formation of thinking mechanisms, and not on the exploitation of memory. Students must master the mental operations through which knowledge is acquired and operated.

Principles underlying developmental learning technology:

- there is no development outside of activity;
- knowledge by learners of their own capabilities and learning results are mandatory conditions for their further mental development;

- the learner becomes a subject of learning activity only on the basis of such personal self-educations as activity, independence and communication.

Problem-based learning technology. Problem-based learning is considered today as one of the leading directions in the construction of educational systems with the aim of solving such complex problems as the development of mental powers, cognitive activity and creative thinking.

The essence of problem-based learning is that the teacher, systematically creating problem situations and organizing the activities of students to solve educational problems, provides an optimal combination of their independent search activity with the assimilation of ready-made conclusions of science.

Problem-based learning is aimed at forming the cognitive independence of students, developing their logical, rational, critical and creative thinking and cognitive abilities. Today, the development of learning models as an organization of educational and research activities is considered in foreign pedagogical searches as one of the directions, an innovative approach to the educational process. This gives grounds to classify problem learning as a new type of learning.

The essence of problem-based learning is that students are consistently and purposefully presented with a number of educational problems, and the student, with the help of the teacher or independently, creatively searches for ways to solve them.

The main categories of problem-based learning are: "problem situation", "learning problem", "problem task", "cognitive problem", "problem question", "problem task", "method of solving a problem situation".

Case technology is a method of active problem-situational analysis, based on learning by solving specific problems-situations (cases). A feature of the case-technology method used in English lessons is the creation of a problem situation based on facts from real life. The immediate goal of the method is to use the joint efforts of a group of students to analyze the presented situation (case) and develop a practical solution; The end of the process is the evaluation of the proposed algorithms and the choice of the best in the context of the problem. The case study suggests:

- a prepared written example of a case;;
- independent study and discussion of the case by students;
- joint discussion of the case in class under the guidance of the teacher;
- adherence to the principle that "the process of discussion is more important than the solution itself".

The technology of working with a case in the educational process is relatively simple and includes the following phases:

- individual independent work of students with case materials (identification of the problem, formulation of key alternatives, proposal of a solution or recommended action);
- work in small groups to agree on the vision of the key problem and its solutions;
- presentation and examination of the results of small groups at a general discussion (within the framework of a training group).

Distinctive features of the case method are:

- description of the real problem situation;

- alternative solution to the problem situation;
- a common goal and collective work to develop a solution;
- functioning of the system of group evaluation of decisions made;
- emotional stress of students.

Project technology is an interconnected activity of the teacher and students. If the student tries to extract information, process it, then the teacher is called upon to indicate a possible source or become a source of information himself. If the student tries to acquire knowledge and skills for their further use in his practice, then the teacher coordinates this process, encourages the student and provides constant feedback.

Project technology is considered in the system of personality-oriented education and contributes to the development of such personal qualities as independence, initiative, creativity, allows you to recognize their urgent interests and needs, and is a technology designed for the consistent implementation of projects. When implementing the project technology, a specific product is created that is the result of joint work and reflection of students, which brings them satisfaction from the realization that they have experienced a situation of success.

Project technology is always focused on the independent activities of students-individual, pair, group, which students perform for a certain period of time. This technology is organically combined with group methods. Design technology always involves solving some problem. Solving the problem involves, on the one hand, the use of a totality, a variety of methods, means of training and education, and on the other, involves the need to integrate knowledge, the ability to apply knowledge from various fields of science, engineering, technology, creative fields. The results of completed projects should be "tangible", i.e., if it is a theoretical problem, then a concrete solution, if practical-a concrete result ready for use (in class, at school, in real life). Design technology involves a set of research, search, problem-based methods, creative in their very essence.

Modular learning technology. Modular learning is a pedagogical technology in which students work with a curriculum made up of modules. Modular learning is very close in its ideas and organizational forms to programmed learning. Training modules and tests can be easily transferred to a computer-based learning environment.

Currently, this type of training is actively used in schools. The relevance of the lessons of modular technology lies in the fact that the structure and organization of the educational activities of students brings modern education closer to individual, personality-oriented education.

The value of the modular education system is that it, by fostering the ability to learn independently, develops reflexive abilities. It is essential that with a modular system, when educational activities are structured on: educational situations, monitoring and evaluation, analytical and research skills are updated.

One of its goals is to ensure flexibility, adaptation to the individual needs of the individual and the level of its basic training and creates conditions for the

development of thinking, memory, creative tendencies, abilities of students and increases the efficiency of vocational training.

Modular training is training in which the educational material is divided into information blocks-modules. The methodology of such teaching is based on the independent work of students, who master the modules in accordance with the established learning goal.

The main component of the structure in this technology is the information module. A module is a separate block containing theoretical material, training tasks, and methodological advice for students. A component of the module is control questions and tests, as well as keys for self-check or mutual check. By studying the module, students achieve a specific didactic or pedagogical goal.

The module consists of the following components:

- precisely formulated educational goal (target program);
- information bank: educational material in the form of training programs, texts;
- methodological guide for studying the material (achieving goals);
- practical classes to develop the necessary skills;
- a set of equipment, tools, materials;
- a diagnostic task that strictly corresponds to the goals set in this module.

Principles of modular learning

- Modularity (educational material is divided into separate completed blocks, logically connected with each other and united by one didactic goal);
- Dynamism (modules can be freely supplemented, replaced depending on changes in the programs on which training is based);
- Flexibility (adaptation of the content of the module to the individual requests of students);
- Conscious perspective (immediate and future goals are set for students. Learning is based on a conscious attitude to the process of learning knowledge);
- Individual advice and instructions for each student.

The principle of modularity implies integrity and completeness, completeness and logic of constructing units of educational material in the form of a system of educational elements. From the blocks-modules, just as from the components, a training course is designed according to the discipline. The elements inside the module block are interchangeable and movable. Mastering of educational material occurs during the completed cycle of educational activities. The flexibility of such a solution is based on the variability of the levels of complexity and difficulty of educational activities.

Heuristic learning technology. This technology (method) is the direct opposite of the study of "ready knowledge", since it puts students in the face of their own ignorance: this object of ignorance is fixed and carefully examined. The essence of heuristic technology is to create a personal experience for learners. He is placed in the position of "knowledge producer". Knowledge arises in him as a consequence of overcoming difficulties and solving life problems. And indicators of the effectiveness of this technology will be the ability to see and understand the problem, offer non-

standard solutions, the ability to reveal an unknown subject from different points of view, and understand other participants in educational activities.

Mastering the educational content occurs in the joint activity of the teacher and students and is built in a certain logic:

- identification of difficulties and definition of problems;
- logical testing of hypotheses, some hypothetical conclusions;
- observations and experiments that will allow you to reject a hypothesis or accept logical conclusions;
- proposal of a possible idea for solving the problem (putting forward hypotheses);
- creating a problem situation (feeling of difficulty).

This technology in the educational process is implemented in a variety of variants of group work in the classroom, in free groups of an educational project, in an educational "workshop", in a business game.

Topic 2.3 Characteristics of promising technologies for educating students

Resolution of the Ministry of Education of the Republic of Belarus approved the Program of Continuing Education of Children and Young People for 2021-2025.

The Program for Continuing Education of Children and Student Youth for 2021-2025 (hereinafter referred to as the Program) was developed in accordance with the Code of the Republic of Belarus on Education, the Concept of Continuing Education of Children and Student Youth.

The program defines the main directions of education of students and contains an action plan for the implementation of the main directions of education of students in the Republic of Belarus for 2021-2025. according to the appendix.

The program uses the main terms in the meanings established by the Code of the Republic of Belarus on education and the concept of continuous education of children and young people.

The purpose of the program is to create conditions for the formation of a versatile, morally and socially mature, creative personality of the student.

To achieve this goal, it is necessary to solve the following problems:

- ideological support for the educational process;
- providing social and pedagogical support and psychological assistance to students;
- updating the content of education, optimizing forms and methods of education, taking into account the latest scientific achievements in the field of education and the best experience of educational work in educational institutions;
- increasing the educational potential of the sixth school day, educational and optional classes, additional education of children and youth;
- information support for educational work in educational institutions, taking into account the latest achievements in the field of informatization and information technologies.

The executors of the program are:

- Ministry of Education of the Republic of Belarus;
- Republican public administration bodies;
- Structural divisions of regional (Minsk city) executive committees exercising state power in the field of education;
- Educational institutions that, in accordance with the legislation, are granted the right to carry out educational activities;
- Public associations "Belarusian Republican Youth Union" and "Belarusian Republican Pioneer Organization".

In accordance with article 95 of the Code of the Republic of Belarus on education, the program is the basis for the development of a comprehensive program of education of children and young students at the regional, district (city) levels, as well as a program of educational work of an educational institution (other organization, individual entrepreneur, which in accordance with the legislation is granted the right to carry out educational activities).

The program provides subjects of the educational process with the opportunity to choose forms and methods of organizing educational work, assumes a creative

approach of teaching staff to its implementation, taking into account the interests, needs, and individual characteristics of students.

According to the program, there are the following relevant areas of education:

Table 2.3

Main directions of education of students

Direction of education	Aimed at …
Ideological education (determined by the priorities of development of Belarusian society, is the basis of the content of education)	– Formation of knowledge of the foundations of the ideology of the Belarusian state; – Instilling in the younger generation fundamental values, ideas, beliefs reflecting the essence of Belarusian statehood; – Formation of information culture
Education of psychological culture	Development of the emotional and value sphere of the individual, its creative potential and resource opportunities
Civic and patriotic education	Formation of active citizenship and patriotism
Spiritual and moral education	Introduction to universal human and national values, formation of moral culture
Multicultural education	Developing students' ability to live in a multicultural world
Legal education	Formation of a legal culture, law-abiding behavior, students' understanding of responsibility for illegal actions
Family and Gender Education	Formation of a responsible attitude to marriage, family, raising children, conscious ideas about the role and life purpose of men and women in modern society
Environmental education	Formation of students' value attitude to nature, skills of rational environmental management and environmental protection
Economic, labour and vocational education	Formation of the economic culture of the individual, understanding of work as a personal and social value, formation of readiness for conscious professional choice
Aesthetic education	Formation of aesthetic culture, development of the emotional sphere, introduction of students to domestic and world artistic culture
Cultivating a culture of safe living and healthy lifestyle	Formation of safe behavior of students in social and professional activities, everyday life, healthy lifestyle skills, awareness of the importance of health as a value, physical improvement
Education of life culture and leisure	Aimed at forming in children and young people a value attitude towards the material environment, the ability to use free time expediently and effectively

In addition to those listed above, there are also such areas of education as:

- development of communication skills;
- stimulation of the processes of self-knowledge and self-improvement, the desire for self-realization;
- development of skills and abilities for effective adaptation to changing living conditions.

Effective Education Technologies

Humanistic pedagogical concept of V.A. Sukhomlinsky. The leading ideas of V. A. Sukhomlinsky's concept are: openness; Relationship between learning and difficulty; Formation of human and moral qualities; Cooperation between teachers and students; Self-management and mutual assistance. He considered the main sources of the educational process to be science and education, art and skill.

V. A. Sukhomlinsky used humanistic methods and techniques in educating a group of students: methods of persuasion, personal example, ethical conversation, discussion, perspectives, methods of self-knowledge, self-education.

Sukhomlinsky considered training to be the most important means of mental education. The main means of developmental learning in the pedagogical system of V. A. Sukhomlinsky are nature, work with books, and work.

In the process of his work, Sukhomlinsky sought to form a worldview among students. To form a scientific worldview, V. A. Sukhomlinsky used: work, teaching physics, chemistry, astronomy, mathematics; Scientific and subject circles, teaching humanitarian subjects.

According to his concept. He divided all general didactic teaching methods into two groups:

- methods that ensure the primary perception of knowledge and skills of students: story, explanation, lecture, description; interpretation of concepts, instruction, conversation; self-reading of the book; demonstration and illustration; demonstration of the work process, skills; self-monitoring; excursion;
- methods of comprehension, development and deepening of knowledge: exercises, explanation; discussions, creative written works; production of teaching aids, graphic works, laboratory works, experiment; long-term work activity.

At the same time, he considered the word to be the main method, but not edifying or overwhelming, but benevolent and inviting. Sukhomlinsky called the word "the subtlest touch to the heart", which can make a person happy and unhappy.

Technology of collective creative education by Igor Petrovich Ivanov. The concept of "collective creative work" (CCW) was introduced in the mid-60s of the 20th century. Teachers believe that Academician I.P. Ivanov is the inventor of the CCW methodology, the creator of pedagogy, which is spoken of as "pedagogy of cooperation", it is called "collective creative education", "education according to Ivanov". He is also considered the initiator and creator of the socio-pedagogical movement.

The organization of creative education is the organization of a certain way of life of the team, covering all practical matters and relationships. The technology of collective creative education is such an organization of joint activities of adults and children, in which everyone participates in collective creativity, planning and analysis of results.

The CCW methodology is an active, creative and organizational mechanism of pedagogy, which the author called "pedagogy of common concern": children and adults become masters of their own lives, create what they are capable of, their deeds

are sincere concern for the surrounding world and the development of everyone and everyone, chivalrous service to good, creative upsurge, democracy, camaraderie.

CCW is a socially important matter. Its primary purpose is to care for improving the life of its team and the surrounding life, in which teachers act as senior comrades of the children, acting together with them and ahead, an alloy of practical and organizational actions for common joy and benefit.

CCW is creative, because, by planning and implementing what is planned, evaluating what has been done and drawing lessons for the future, all students, together with teachers and led by them, are searching for the best ways, methods, and means of solving vital practical problems.

CCW is collective because it is planned, prepared, performed and discussed by students and educators.

Stages of collective creative work.

The first stage is the starting conversation, during which the teacher fascinates the students with the joyful prospect of an interesting and useful business. For whom '? When? Where? Who? With whom?

The second stage is collective planning.

The third stage is collective preparation.

The fourth stage-the implementation of the CCW - is the result of the work done in preparation.

The fifth stage is collective summing up. The teacher sets tasks for reflection at the general meeting: what was good and why? What didn’t work out and why? What do we propose for the future? The teacher summarizes the opinion expressed at the meeting.

Sixth stage - the educator organizes the use of experience accumulated during planning, preparation, implementation and discussion of the case..

Ivanov's method of reflection helps to relieve psychological tension, relieve and prevent conflicts. This positive effect is achieved when we start not with the "negative", but with the good: what we liked, succeeded, pleased, who was particularly distinguished, to whom we thank. When the team not only evaluates the past, but also outlines a program for its further actions, people have perspective, optimism, and the desire to act.

The strength of every creative work is that it requires a common search, gives impetus and opens wide space for it. Therefore, in each of these cases-flexible form, rich content, non-standard options.

School of self-determination by A.N. Tubelsky

"School of Self-Determination" is a systematic educational institution that educates children aged 3-17. Training is combined with work to form the individual content of education. This is one of the brightest schools not only in Russia, but also in the world, which has its own constitution.

The goals of education in the school of self-determination of A. N. Tubelsky:

- self-determination of learners;
- participation of students in various areas of activity, such as cognitive activities, labor, social-organizational, as well as artistic, creative and sports activities;

- training in compulsory disciplines;
- development of the ability to correctly formulate and express one's thoughts;
- formation of a view of society and representation of oneself in it;
- physical development;
- preparing trainees for work.

A feature of the school is the idea of free choice, the formation of students' abilities for self-realization and self-determination. Studying compulsory subjects and obtaining knowledge that students need to understand the general picture of the world, while they are given the right to independently choose subjects. Teachers help to find a problem for more careful study, individual pace and ways to solve it, organize joint and separate activities of students and teachers. Children are taught according to a curriculum, which is drawn up individually for each person.

Formation of personality in the school of self-determination of A. N. Tubelsky. The process of forming a human personality and the process of learning as the process of determining and forming the image of "I" is implemented in accordance with the following rules.

1. Personally oriented education (personal meaning of study). Each teacher reveals the meaning of the subject or course, an understanding of the content of the subject, a personal idea of the activity in which the content of this subject gives rise to the education and development of a personality. By mastering the necessary material of the academic subject, each student determines personal meaning, and this is his activity, mental activity is formed, and not just individual algorithms and concepts are studied.

2. Interdisciplinary immersions: Teachers working in the same classroom work on general and universal concepts and skills for two to three days.

3. Evaluation of its activities.

4. Exam to determine creative abilities.

5. Interaction in creative activities of students of different ages.

6. A kind of educational space filled with various things, symbols and material objects that carry their cultural meaning.

7. Place of pedagogical activity in the art-research direction.

Module 3: Topics 3.1-3.3
Topic 3.1. Higher education as an innovative organization

An innovative organization is an innovation in an organization that provides it with increased efficiency.

It is an organization that has the following features:

- operates at a new stage of competition-the stage of innovation;
- has the necessary innovation potential;
- uses the criterion of effectiveness-changing the environment to its advantage by influencing its environment;
- forms a policy aimed at initiating change, i.e. To carry out systematic innovative activities, both for each division of the organization and at each level of management.

In relation to the pedagogical process, innovation is the introduction of something new in the goals, content, methods and forms of teaching and education, the organization of joint activities of the teacher and the student.

Innovative technologies in education make it possible to regulate training and direct it in the right direction. They play a particularly important role in higher educational institutions, since the main task of universities is to "graduate" specialists, and the process of training personnel requires appropriate changes in the role, approaches and methods of managing innovative scientific and educational activities of modern universities to match them with the real pace of economic development.

Innovative activity of a university is a systematic, qualitative change in the institution of higher professional education as a result of purposeful development and implementation of innovations in the educational, scientific and educational process of the university. The goals of management are the development of creative abilities of students, the training of high-class specialists, as well as the creation of high-tech technologies and the implementation of these technologies.

Pedagogical innovation is an innovation in pedagogical activity, changes in the content and technology of teaching and education, aimed at increasing their effectiveness.

Innovations in education are considered innovations specially designed, developed or accidentally discovered by pedagogical initiative. The content of innovations can be: scientific and theoretical knowledge of a certain novelty, new effective educational technologies, a project of an effective innovative pedagogical experience, ready for implementation, executed in the form of a technological description. Innovations are new qualitative states of the educational process, formed when the achievements of pedagogical and psychological sciences are introduced into practice, when using advanced pedagogical experience.

The development of higher education cannot be carried out otherwise than through the development of innovations, through the innovative process. To effectively manage this process, it is necessary to understand it, and therefore to know what the study of its structure, or structure, implies. Any process (especially

when it comes to education) is a complex dynamic (mobile, non-static) education-a system that is polystructural, and therefore the innovation process itself (like any system) is polystructural.

The activity structure is a set of the following components: motives-goal-tasks-content-forms-methods-results. Indeed, everything begins with the motives (motivations) of the subjects of the innovation process (rector, teachers, students, etc.), defining the goals of innovation, transforming the goals into a "fan" of tasks, developing the content of innovation, etc. All these components of the activity are implemented in certain conditions (material, financial, hygienic, moral-psychological, temporary, etc.), which are not included in the very structure of the activity, but if ignored, the innovation process would be paralyzed or would proceed ineffectively.

Innovation in higher education itself implies a system consisting of several components:

- learning objectives;
- content of education;
- motivation and means of teaching;
- participants in the process (students, teachers);
- results of activities.

Characteristics of a higher education institution as an innovative organization. Such properties include the following:

- *adaptability* (assumes the ability to effectively respond and adapt to changing circumstances, whether changes in educational technology, industry requirements, student needs, or societal expectations; ensures that educational institutions can continually improve their curriculum, teaching methods, and administrative processes);
- *purposefulness* (signifies its commitment to a clearly defined mission and set of goals that guide its activities and decisions; ensures that all initiatives, from academic programs to research projects and public engagement, are aligned with the institution's core values and long-term goals.);
- *value system* (includes the underlying beliefs and ethical standards that shape its culture, behavior, and decision-making processes; defines an institution's mission, vision, and strategic goals, providing a basis for consistent and principled action; promotes integrity, excellence, and accountability, ensuring that the institution's activities are consistent with its ethical obligations and social responsibilities.)

Components of innovative educational environment

Innovative educational environment is the whole complex of interrelated conditions that provide human education, the formation of the personality of a teacher with innovative and creative thinking and create professional competence.

The understanding of the innovative educational environment needs to be supplemented by such a phenomenon as "interaction". It is the interaction of the many components that make up this environment that makes it complete and innovative.

Components of an innovative educational environment: modern educational technologies, cooperation, information and communication technologies, competence-activity approach, educational and methodological set, multi-level

educational content, lesson. In order to understand how the components interact with each other and how each of them works to create an innovative educational environment, let's consider them in more detail.

Modern educational technologies. To implement cognitive and creative activity of the student in the educational process, modern educational technologies are used, which make it possible to improve the quality of education, use study time more effectively and reduce the share of reproductive activity of students by reducing the time allocated to homework. The school presents a wide range of educational pedagogical technologies that are used in the educational process. Innovative pedagogical technologies are interconnected, mutually conditioned and constitute a certain didactic system aimed at cultivating such values as openness, honesty, goodwill, empathy, mutual assistance, and ensuring the educational needs of each student in accordance with his individual characteristics.

Cooperation. In training based on cooperation, the goal is the development of intellectual, spiritual and physical abilities, interests, motives, and the development of a scientific-materialistic worldview. The content of the lesson within the framework of cooperation is the mastering of methods of cognition, socially and personally significant transformations in the surrounding reality, and not program knowledge and textbook material. The driving forces of teaching are the joy of creativity, the feeling of growth, improvement, knowledge increase, self-confidence. The methods of work are joint activity, search, all kinds of cooperation between the teacher and students.

Information and communication technologies (ICT) are a set of methods, production processes and software and hardware tools integrated for the purpose of collecting, processing, storing, distributing, displaying and using information in the interests of its users. The use of ICT applied in the field of education implements the following tasks:

- Support and development of systematic thinking of the student;
- Support of all types of cognitive activities of the student in acquiring knowledge, developing and consolidating skills and abilities;
- Implementation of the principle of individualization of the educational process while preserving its integrity.

Competency-based activity approach (CBA). The competency-based activity approach is an approach that focuses on the result of education, where the result is not the sum of the acquired information, but the ability of a person to act effectively in various problem situations. In other words, it is a system of pedagogical principles, guidelines and methods of activity that create conditions for the formation of competencies. It is important in the implementation of the competency-based activity approach to comply with the principles of the activity approach and focus on the development of the motivational and personal sphere. Thus, the essence of the CBA is that the student himself is at the center of training, and his competence will be formed on the basis of the content of education, and the process of assimilation of the selected content will be of an activity nature. Accordingly, the main goal will be the

formation of the student's ability to carry out various types of activities, mastering new competencies.

Educational and methodological kit (EMK). A set of modern information educational resources, both printed and electronic, systematized by level of education, by discipline, by target use and by didactic functions. EMK allows for an individual approach to organizing free educational interaction with the information and educational environment, associated with the choice of content, forms and methods of teaching.

Different levels of education content. This is an approach to organizing the educational process, within which different levels of mastery of educational material are assumed, that is, the depth and complexity of the same educational material differs in groups of basic and profile levels, which enables each student to master educational material on individual subjects of the university program at different levels, but not lower than the basic level, depending on the abilities and individual characteristics of each student; This is a technology within which the criterion for evaluating the student's activity is his efforts to master this material and its creative use. The subjects prescribed by education standards remain the same for all levels of education.

Thus, the components of the innovative educational environment are interconnected, mutually conditioned and constitute a certain didactic system aimed at educating the personality and ensuring the educational needs of each student in accordance with his individual characteristics.

Theory and technology of the environmental approach in education

The environment approach in education is a pedagogical concept based on the idea that learning and development occurs best in a stimulating and supportive environment. It assumes that the environment in which learning takes place plays an important role in shaping learners' knowledge, skills and values.

The environmental approach implies the creation of a supportive educational environment that promotes active and effective learning. This environment should be structured, supportive and stimulating for learners. It should provide a variety of opportunities for research, experimentation, collaboration and independent work.

The environmental approach also implies an individual approach to each student, taking into account their needs, interests and abilities. The teacher must create conditions that allow each student to reach his or her potential and develop to the fullest.

The role of the teacher in the environmental approach

The teacher plays a key role in the environmental approach as he creates and maintains an educational environment in which learners can actively learn and develop. Here are some of the main roles of the teacher in the environmental approach:

Organizer of the educational environment. (The teacher creates a stimulating and supportive educational environment in which students can learn freely and actively. He organizes teaching materials, space and time to provide optimal conditions for learning and development.)

Learning facilitator. (The teacher acts as a facilitator who helps students actively participate in the educational process. He stimulates and supports their interests, motivation and independence, helps them formulate questions, search for information, analyze and evaluate the results of their work.)

Mentor and consultant. (The instructor is a mentor and consultant for students, helping them develop skills and strategies for self-regulation, planning, organization, and reflection. He helps them develop critical thinking, analytical and problem-oriented skills, and collaborative and communication abilities.)

Researcher and research partner. (The teacher himself is a researcher who constantly improves his knowledge and practice, and at the same time he becomes a research partner for the students. It helps them develop skills in research, conducting experiments, analyzing data, and drawing conclusions.)

Table 3.1

Comparison of approaches in education

Aspect	Traditional approach	Environmental approach
essence	centered learning, emphasis on transferring knowledge from the teacher to the audience	centered learning, emphasis on active interaction of the learner with the environment
description	passive information assimilation, reproductive thinking	active and research-based learning, creative thinking
the role of the teacher	knowledge transfer, monitoring and evaluation	organization of the learning environment, support and guidance
advantages	structure, clarity, efficiency in information transmission	development of independence, creative thinking, application of knowledge in practice
examples	lectures, textbooks, tests	project activities, field studies, collective discussion

Advantages of the Environmental Approach in Education

Active participation of students. The environmental approach focuses on the active participation of students in the educational process. Students become active participants, not passive listeners. They explore, experiment, ask questions and find the answers themselves. This helps them better understand and remember the material, and develops their critical thinking and self-study skills.

Development of social skills. The environmental approach contributes to the development of students' social skills. They work in groups, communicate, collaborate and solve problems together. This helps them develop communication, collaboration, leadership and conflict management skills. Such skills are important in today's society and will help learners successfully interact with others in the future.

Individualization of training. The environment approach allows the teacher to individualize instruction according to the needs and abilities of each learner. The teacher can adapt the materials and tasks so that they correspond to the level of preparation of each student. This helps students achieve better results and develop their potential.

Development of critical thinking. The environmental approach contributes to the development of students' critical thinking. They learn to analyze information, assess its reliability and applicability, and formulate their own arguments and

conclusions. This helps them develop critical thinking skills that will be useful to them in all areas of life.

Increased motivation and interest in learning. The environmental approach helps to increase students' motivation and interest in learning. Students are more interested and motivated when they actively participate in the learning process, have the opportunity to explore and experiment, and see the practical applicability of the material being studied. This helps them better absorb knowledge and develop in the field that interests them.

Examples of applying the environmental approach in practice:

Organization of educational space. In the environmental approach, special attention is paid to the organization of the educational space. The teacher creates a comfortable and stimulating environment that promotes the active participation of students. For example, a classroom may have different learning areas such as reading, math, creativity, etc. Each area is equipped with appropriate materials and tools so that students can independently explore and learn in their area of interest.

Project activities. The environmental approach actively uses project activities, which allows students to apply the acquired knowledge and skills in practice. Students work in groups or individually on projects that require research, planning and problem solving. For example, students can create environmental projects, research and analyze data, and develop solutions to improve the environment.

Collective learning. The environment approach emphasizes collective learning, where students actively interact with each other and with the teacher. They exchange ideas, ask questions, discuss problems and find solutions together. For example, a teacher may organize discussion groups where students discuss different points of view on a certain topic and come to a common conclusion.

Use of technology. The environmental approach actively uses modern technologies in education. Students can use computers, tablets, interactive whiteboards and other technical tools for research and learning. For example, they may conduct online research, create multimedia presentations, or use specialized programs to study specific subjects.

Topic 3.2. Organizational and methodological support of technological innovations in higher education institutions

The methodological system as a whole is a component of pedagogical management that performs various functions: monitoring, analytical, predictive, innovative and technological. Forms of methodological work (at the level of an educational organization, educational unit) can be: methodological council, pedagogical council, pedagogical workshop, innovative pedagogical laboratory, experimental pedagogical platform, etc. Within the framework of these forms of work, the implementation of the innovative and technological function of the methodological component of an educational organization is the most problematic, since it is often associated with the unreadiness of the teaching staff for innovative transformations.

Analysis of the methodological system is able to identify shortcomings and shortcomings in the organization of competence education from the point of view of social, state and personal requirements. The analysis of the design of the methodological system involves first considering its structure, the state of each individual component and the relationship between them. In this case, the methodological system can be considered as a set of general principles for determining the goals of education, choosing educational content, organizing the educational process and evaluating learning results.

An example of structuring a methodological system can be a teacher's methodological portfolio, an educational and methodological complex or a teacher's "desktop". Thus, the components of the methodological portfolio can be: content-target component (a program of an academic discipline that meets the requirements of the Federal State Educational Standard); Technological component (methodological recommendations for various types of work); Control-reflexive component (fund of assessment tools of the training module); Additional materials (list of basic and additional literature; map of the provision of the training module; extracts from the main regulatory documents and legal acts, etc.).

Methodological work is one of the responsibilities of a teacher of an educational institution and is aimed at developing and improving the methodology of teaching the discipline. Its result is the creation of sets of tasks and assignments for the discipline, didactic materials, educational and visual aids used in training sessions.

The educational and methodological activities of the teacher at the university include a wide range of actions aimed at developing, improving and organizing the educational process. It involves various university staff and is performed in various formats.

The main goals and objectives of methodological work include:

- curriculum development (university teachers are responsible for creating and updating curricula that define content, objectives, learning outcomes and methods for assessing students' academic performance);

- preparation of educational and methodological materials (teachers develop textbooks, manuals, lectures, presentations and other materials that help students master the educational material);
- organization of classes (educational and methodological work also includes planning and conducting classes, including lectures, seminars, practical classes and laboratory work);
- development of curricula and schedules (faculty members help to develop curricula and schedule classes to ensure rational use of teaching time and university resources);
- methodological support of students (teachers provide methodological assistance and advice to students, helping them improve their learning skills, develop critical thinking and achieve educational goals);
- introduction of innovations (university teachers are engaged in the search and implementation of innovative methods and approaches to teaching, use modern information technologies in the educational process).

Examples of educational and methodological work:

- developing a training course in a new discipline, including defining goals and objectives, drawing up a program and developing training materials;
- organization of a seminar for teachers to discuss new teaching methods and exchange experiences;
- conducting consultations for students, where the teacher helps them deal with difficult topics and prepare for exams;
- participation in the development and review of textbooks or teaching aids in a certain specialization.

Educational and methodological activities are an important component of the work of teachers at the university, since they are aimed at quality education and successful achievement of educational goals by students.

Types of methodological work of the teacher:

- analysis of educational program documentation, methodological complexes;
- methodological analysis of educational material;
- planning a system of theoretical and practical lessons;
- modeling and construction of forms for presenting educational information in the lesson;
- designing students' activities to form technical concepts and practical skills;
- development of teaching methods for the subject;
- management and evaluation of students' activities in the lesson;
- reflecting on one's own activities when preparing for the lesson and analyzing its results.

Individual methodological work is the teacher's self-education, which allows you to choose a study mode that is convenient for him and the questions necessary for studying. Pedagogical self-education provides independent purposeful acquisition of knowledge in the field of the subject being taught, pedagogy, psychology and mastery of teaching and education methods. Individual methodological work, which

is the main form of improving pedagogical skills, is carried out in the following main areas:

- study of scientific, educational and methodological literature, regulatory documents related to practical activities;
- creation of comprehensive methodological support for teaching subjects and professions;
- study and introduction of modern teaching technologies into the educational process;
- analysis, adjustment, development of educational program documentation;
- participation in the work of the pedagogical council, methodological commissions, seminars, pedagogical readings, creative associations of teachers.

Methodological independent work is planned by each teaching staff for a year. The goals and content of the methodological work of teaching staff must be interrelated with the goals of the educational institution.

Individual methodological work with teaching staff is carried out by the director, deputy directors, methodologist, chairmen of methodological commissions and heads of other methodological units to assist them in improving pedagogical and professional skills, in the development of educational program documentation, designing training sessions, creating educational and methodological complexes, in the development of author's training programs, methodological manuals, etc.

Activities of the teacher in scientific and methodological support:

- develop educational program documentation.
- compile educational and methodological complexes, develop their main components.
- introduce modern pedagogical technology, automated learning systems, e-learning into the educational process. training facilities, training complexes.
- create and develop the material and technical base of the educational institution.

The methodological activity of the teacher is considered as a single system of interrelated actions, activities and measures, which are aimed primarily at the comprehensive improvement of professional skills and qualifications of each teacher. It is appropriate to include measures related to self-education, management of professional self-education and self-improvement of teachers. In addition, methodological work is aimed at increasing and fully developing the creative capabilities of the teaching staff, and ultimately-at achieving optimal indicators of education and upbringing, improving educational work, as well as developing some students.

In pedagogy, **diagnostics** is understood as a special type of activity that is the establishment and study of signs characterizing the state and results of the learning process, and on this basis allows to predict possible deviations, determine ways to prevent them, as well as adjust the learning process in order to improve the quality of training specialists.

Diagnosis of professional interests and ideals is reflexive, because it is important that the questions stimulate mechanisms of thinking, comprehension, understanding, awareness, evaluation, etc. To diagnose professional interests and

ideals, a person's dialogue with himself is necessary, an appeal to himself in determining professional goals, in search of the meaning of professional activity, in building professional career scenarios. Reflective diagnostics allows you to receive detailed answers, and also makes it possible to analyze them by the subject himself. Answering the proposed questions, the student finds himself in a situation of searching for meanings and the need to specify the goals of his activities. He is forced to consistently build his ideal and compare his present self with his future self, i.e. with his ideal.

Table 3.2

Principles of pedagogical diagnostics

Principle	Essence
principle of systematicness	systematicness lies in the fact that all students of the class, group, and creative association undergo regular diagnosis throughout the entire period of study under the program; diagnosis is carried out at all stages of the pedagogical process-from the initial perception of knowledge to its practical application
principle of objectivity	objectivity lies in the scientifically based content of diagnostic tools (tasks, questions, etc.), the teacher's friendly attitude towards all students
principle of visibility	diagnosis is carried out openly for all students according to the same criteria and a necessary condition for implementing the principle is the announcement of the results of diagnostic sections, their discussion and analysis
principle of optimality	optimality in the choice of method, volume, etc.
principle of accounting and continuity between ages	the information obtained as a result of the diagnosis can be used in planning and organizing career guidance work with children both in different age groups and in homogeneous age groups.
principle of complexity of methods	when diagnosing each specific ability, it is necessary to see the system: for example, diagnosing observation, we can talk about memory, attention, flexibility of thinking, features of perception and, of course, features of speech, etc.

There are various diagnostic methods that are used to some extent to solve the problem of assessing the professionalism of the teacher and the level of his professional competence.

Monitoring is a necessary component of any effective management. Objects of management can be the conditions, the process, the results of this process, the professional activity of the teacher, on which the results of the educational process depend.

Monitoring as a tool for managing the professional activity of a teacher is continuous monitoring and diagnostic actions that allow you to observe and control, as necessary, the teacher's progress towards professional skill.

Model for monitoring the management of professional activities of teachers:

- study of the personnel composition of the teaching staff;
- taking into account the age category of the teaching staff;
- characteristics of teachers' creativity;
- dynamics of creative development, professional level of teachers;
- comparative characteristics of professional growth of teachers;

– exploring the possibilities of teachers.

Monitoring allows you to establish the actual state of the teacher's pedagogical skills; Determines his pedagogical capabilities, ways and means for transferring the teacher to a higher level of professional skills. Using the results of monitoring, specific assistance can be provided to the teacher. As a result, the HSC process is improved.

Pedagogical audit-conducting an independent examination, assistance in the continuous improvement of the professional level of teachers, training teachers' skills in analyzing the results of test work, adjusting activities taking into account the results obtained.

Pedagogical audit allows to carry out independent control over the state of taught subjects, to develop organizational and pedagogical recommendations aimed at eliminating shortcomings in the educational process identified during the audit analysis.

Diagnostics of the teacher's professional skills

The key problem in achieving the quality of education is personnel, since the quality of education directly depends on the quality of professional activity of the teacher.

The basis for assessing the teacher's activities is orientation to modern educational values associated with the quality of individually-oriented education. On the basis of competence and integral approaches, the following criteria for assessing the quality of the teacher's work are distinguished:

– from the standpoint of effectiveness expressed in the educational achievements of students;
– from the standpoint of the quality of educational activities;
– from the standpoint of the quality of the conditions of the educational process;
– from the position of professional development of the teacher.

An important role in the evaluation is played by the formation and development of the teacher's competencies, which are also indicators of the quality of education, and such characteristics as educational conditions that promote personal development, the real activity of the teacher (in research, educational, methodological, organizational, educational, educational work).

Topic 3.3. Organization of scientific and innovative activities in higher education institutions

The concept of a science and technology park (technopark) is a dynamic and innovative environment designed to promote scientific, technological and industrial progress. These parks serve as territorial hubs where innovative projects can be conceived, developed and implemented, often within a collaborative ecosystem of universities, research institutes and private enterprises.

A technology park is a strategically designed space offering a combination of physical infrastructure and services aimed at promoting research activities. These are usually laboratories, offices, manufacturing facilities and often residential areas. The main goal of the Technopark is to create a favorable environment for innovation, allowing startups and reputable companies to cooperate with academic and research institutions. By providing access to advanced technologies, expertise and financial resources, technology parks play a crucial role in commercializing new technologies and creating high-tech jobs.

Technoparks facilitate the transfer of knowledge and technology between universities and industries. They provide companies with a platform to access academic research leading to the development of new products and services. This collaborative ecosystem helps bridge the gap between theoretical research and practical application, accelerating the innovation cycle. Additionally, technoparks often offer business incubator services, including mentorship, funding opportunities, and networking events that are essential for startups to grow.

History of technoparks

The concept of technoparks arose in the middle of the 20th century. The first recognized technology park, Stanford Research Park, was founded in 1951 in Palo Alto, California. It was a groundbreaking initiative by Stanford University to foster collaboration between academia and industry. The success of the Stanford Research Park paved the way for similar parks around the world.

Throughout the 1960s and 1970s, technology parks began to appear in Europe and Asia. For example, the Cambridge Science Park in the UK was founded in 1970 and became a model for similar developments. During this period, technology parks played an important role in the development of semiconductor and information industry.

The 1980s and 1990s saw the proliferation of technology parks around the world, driven by the development of technology and increased government support for innovation. Countries such as Japan, South Korea and Germany have established an extensive network of technology parks to support their high-tech industries. In recent decades, the scope of activity of technoparks has expanded to include biotechnology, renewable energy and advanced manufacturing, reflecting the evolving environment of technological innovation.

Formation of Belarusian model of technoparks

Belarus has made significant progress in developing the infrastructure of the Technopark. The Belarusian technopark model is characterized by strong state support, strategic partnership with academic institutions and orientation to specific high-tech industries. The creation of technoparks in Belarus is part of a broader national strategy to transform the country into an innovative economy.

The first technopark in Belarus, the Belarusian High Technology Park (HTP), was established in 2005. It serves as a key driver for the development of the IT industry in Belarus, attracting both local and international companies. The HTP offers favourable tax regimes, a sound legal framework and a collaborative environment that encourages innovation and entrepreneurship. The success of the HTP has inspired the development of other technoparks across the country, each specializing in different sectors such as biotechnology, nanotechnology and green energy.

The Government of Belarus has implemented various policy measures to support the growth of technology parks, including grants, subsidies and infrastructure investments. These measures have helped create a dynamic ecosystem in which academia, industry and government collaborate to advance technological innovation.

Technoparks of higher educational institutions

Higher education institutions play a crucial role in the success of technology parks. Universities and research institutes are often the main sources of innovation, providing the scientific and technological knowledge needed to stimulate R&D. Technoparks associated with higher education institutions benefit from access to cutting-edge research, a pool of talented graduates and a culture of academic excellence.

Technoparks at universities promote close cooperation between students, teachers and industry professionals. Such collaboration leads to the development of innovative projects that can be quickly commercialized. For example, the Massachusetts Institute of Technology has established the Innovation Initiative, which supports entrepreneurship and innovation through various programs and partnerships.

In Belarus, technoparks associated with universities, such as the Belarusian State University Technopark, play a crucial role in the national innovation system. Belarusian National Technical University (BNTU) has its own Technopark, which cooperates with various industries to promote innovation and applied research. This park has played an important role in developing new technologies and stimulating the growth of startups. These technology parks provide students and researchers with the resources and infrastructure they need to translate their ideas into viable products and services. They also promote internships, joint research projects and technology transfer agreements, boosting the country's overall innovation capacity.

Prospects for the development of innovative infrastructure of higher educational institutions

The future development of technology parks and innovative infrastructure in higher education institutions has significant potential. As the demand for high-tech solutions continues to grow, universities and research institutes will play an increasingly important role in driving innovation. The following perspectives highlight the potential for growth and development:

- *industry collaboration*: strengthening partnerships between universities and industries will be crucial to driving innovation. joint research projects, joint research initiatives, technology development will promote the commercialization of academic research;

- *implementation of cutting-edge facilities*: to support cutting-edge research, higher education institutions should invest in state-of-the-art laboratories, research centers and prototyping facilities; these investments will attract top talent and ensure innovative research;
- *interdisciplinary research*: encouraging interdisciplinary research will lead to the development of innovative solutions that solve complex societal problems. technoparks can provide the infrastructure and support needed to facilitate collaboration in different areas of research;
- *entrepreneurship and start-up support*: universities should improve their support for entrepreneurship through incubators, accelerators and funding programs. by fostering a culture of startups, higher education institutions can stimulate economic growth and job creation;
- *global collaboration*: participation in international collaborations and partnerships will give universities access to global networks of knowledge and resources.technoparks can play a key role in facilitating this collaboration, enabling the exchange of ideas and technologies on a global scale.

The Belarusian model of technological sciences with its strong state support and strategic partnership offers valuable information on the successful implementation of these innovation centers.

Integration of technology parks in higher education institutions increases their ability to develop innovation and entrepreneurship. By leveraging the expertise and resources of universities, technoparks can stimulate the development of advanced technologies and promote the growth of high-tech industries. Prospects for the future development of innovation infrastructure in higher education institutions are promising, with enhanced collaboration, investment in cutting-edge facilities and support for entrepreneurship playing key roles in shaping the innovation landscape.

PRACTICAL SECTION

Exercises on the topics of modules 1-3

Exercises on topic 1.1

Task for *the control group*: choose the option that you think is correct

1. The main tasks of the Department of Science and Innovation are...

1) regulatory, methodological and organizational support for scientific, scientific, technical and innovative activities in the system of the ministry of education;
2) organizational, methodological and financial support for planning and implementation in institutions subordinate to the ministry of education, research and development work;
3) development of youth science, research work of students;
4) ensuring the activities of the Special Fund of the President of the Republic of Belarus.

2. What coordinates the Department of Science and Innovation in Higher Education Institutions?

1) Financial investments;
2) Sports competitions;
3) Public events;
4) Scientific, technological and innovative activities

3. What activities are not supported by the Department of Science and Innovation?

1) Creation of innovative institutions;
2) Coordination of art exhibitions;
3) Development of international scientific cooperation;
4) Planning of research activities

4. **What is one of the functions of science and innovation management in terms of financing?**

1) Funding of music concerts
2) Funding of sports teams
3) Funding of scientific research within the framework of various state and international programs;
4) Funding of art exhibitions

5. What direction in the technology of the educational process?

1) Updating the quality of education taking into account modern means of communication;
2) Reduction of academic hours;
3) Focus on physical education;
4) Emphasis on traditional teaching methods

6. What is needed to achieve a new quality of general education?

1) Increasing the size of the audience;
2) Reduction of material and technical costs;
3) Use of outdated teaching methods;
4) Rethinking the relationship between academic disciplines

7. What is the best way to describe learning technology?

1) As the gap between theory and practice;
2) Lack of knowledge of practical applications;
3) As an elimination of theoretical positions;
4) As a link between theory and practice

8. What does educational technology cover at the institutional level?

1) The whole process from setting the goal to diagnosing the result;
2) Teaching methods only;
3) Administrative tasks only;
4) Extracurricular activities only

9. Any human activity has two levels: the first-... ("how it is done") and the second-... ("how to do it" or "how I will do it").

1) Technical; Complex;
2) Technological; Labor;
3) Group; Individual

10. The problem of updating the quality of education is closely related to... the educational process.

1) Technologization trend
2) Organizational form
3) System

Task for *the experimental group*: Determine whether the following statements are true

1. Educational technologies are aimed at increasing the efficiency of the educational process and ensuring that students achieve the planned learning results.

2. Technology in education largely depends on the personal characteristics of the teacher implementing it.

3. Educational technologies serve as a link between theory and practice in education.

4. At the institutional level, educational technologies cover the entire process from setting goals to diagnosing results.

5. Educational technology at the level of individual activity of the teacher is focused exclusively on the activities of teachers.

6. The "inner layer" of learning technology involves interaction between learning content and students. The "outer layer" of teaching technology refers to activities to implement the educational process.

7. Is it true that in order to use theoretical positions in practice, they need to be theorized, painted in the form of activity procedures?

Exercises on topic 1.2

Task for *the control group*: choose the option that you think is correct

1. The learning mechanism that leads to planned results was called by J.A. Komensky a “... machine”.

1) mechanical;
2) educational;
3) didactic

2. The organization of the educational process, providing general education of a new quality, requires a ... approach, rethinking the relationships between educational subjects, significant efforts, as well as material and technical costs.

1) personal;
2) systemic;
3) creative

3. The term "...", which in the "Pedagogical Encyclopedia" of the 1930s was defined as "a set of techniques and means aimed at the clear and effective organization of educational sessions."

1) pedagogical methodology;

2) pedagogical system;
3) teaching technology

4. In 1954... developed the concept of programmed learning, reinforced learning according to the "stimulus-reaction" scheme.

1) A.S. Makarenko;
2) B.F. Skinner;
3) L. Larson

5. In 1961, a follower of Skinner... proposed the new term "instructional technology".

1) N.A. Crowder;
2) D. Finn;
3) A.S. Makarenko

6. Modern pedagogical teaching technology is described as...

1) a technological chain of actions or operations, which is built strictly in accordance with target settings, having the form of a specific expected result;
2) step-by-step planning and consistent implementation of elements of pedagogical technology must, on the one hand, be reproduced by any teacher and, on the other, guarantee the achievement of planned results by all students;
3) diagnostic procedures containing criteria, indicators and tools for measuring performance results.

Task for *the experimental group*: participation in the educational game "Aquarium" to discuss the following questions in order *(the group is divided into jury members and 2 teams of players, the players in their team discuss each question from those listed below, then a representative of each team comes to the board and presents the answer of his team, and the jury members must evaluate the answers received):*

1. Discuss the consequences of using modern educational technologies to increase the efficiency of the educational process. What are the potential advantages and disadvantages?
2. Discuss the problems of introducing innovative educational technologies in universities. What strategies can be adopted to overcome these problems?
3. Discuss the importance of methodological support in planning and implementing research projects. How does this affect research results?
4. What is the difference between pedagogical technology and teaching methods?

Exercises on topic 2.1

Task for *the control group*: choose the option that you think is correct

1. Which of the listed methods refer to active learning methods?

1) method of demonstration (display);
2) lecture;
3) role-playing;
4) problem workshops;
5) method of exercise;
6) round tables;
7) working with a book;
8) heuristic teaching methods;
9) problem lectures

2. Non-simulation teaching methods include...

1) problem seminar, thematic discussion, "brainstorming", etc.;
2) lectures and standard lessons, reading textbooks and other educational materials;
3) simulation games, role-playing games, computer games, simulation methods

3. The main advantages of ... teaching methods include the development of listening and hearing skills, learning through mutual exchange of experience, activating thinking, developing teamwork skills, etc.

1) individual;
2) real;
3) interactive

4. ... teaching methods include the following: problem-solving seminar, thematic discussion, brainstorming, round table, etc.

1) Imitation;
2) Non-imitation

Tasks for *the experimental group.*

1. Complete the sentences with words from the table below.

Interactive, active, lecture, provide, certification, competence

1. ... method is a way of interaction between students and a teacher, in which students are active participants in the lesson.

2. ... methods involve joint learning (cooperative learning), i.e. students and a teacher are subjects of learning.

3. .... is a person's possession of the relevant competence, including his personal attitude to it and the subject of activity.

4. A ... teaches passive perception of other people's opinions, inhibits independent thinking.

5. The main goal of seminars is to ... students with the opportunity to master the skills and abilities of using theoretical knowledge in relation to the specifics of the studied field.

6. Current ... is an assessment of the quality of assimilation by students of the content of a specific educational program during the training period after the initial certification until the midterm (final) certification.

2. Determine whether the following statements are true

1. Lectures promote the development of independent thinking.

2. Problem-based seminars, thematic discussions and problem-based lectures belong to active teaching methods.

3. Three stages of critical thinking can be identified: challenge comprehension and reflection.

4. Pedagogical technology is compiled for passing the lesson; it does not propose a project for the process of teaching expressive forms and content in learning-knowledge of the student's activities.

5. Active learning methods do not include verbal and visual learning methods.

6. The orientation of the students to group work and its evaluation play an essential role in the seminar.

3. Debate on the topic "The role of the teacher in methodological support of students"

The group is divided into jury members and 2 teams, each of which defends a certain point of view:

Team A should argue the need to provide students with comprehensive guidance and support to develop critical thinking and learning skills;

Team B should discuss the benefits of encouraging more independent learning and problem solving to prepare students for independent learning and professional activities.

Members of the jury choose a better reasoned point of view that corresponds to the Code of the Republic of Belarus on Education 2022.

Exercises on topic 2.2

Task for *the control group*: choose the option that you think is correct

1. The principle of ... in the learning process was and remains one of the main ones in didactics

1) activities;
2) neutrality;
3) passivity

2. In some pedagogical technologies, these tools constitute the main idea and basis of the effectiveness of results

1) game technologies, problem-based learning and communication technologies;
2) material, communication of ready-made knowledge, homework;
3) tutorial, lecture, exercise

3. The purpose of... training is to prepare the student for the independent mastery of knowledge and the search for truth

1) traditional;
2) network;
3) development

4. The ... approach is a methodological orientation in pedagogical activity, developed on the basis of a humanistic worldview.

1) personality-oriented
2) correct;
3) realistic

5. ... technology is characterized by the creation of a problematic situation based on facts from real life in English lessons

1) case;
2) modular;
3) teaching

6. Educational activities in case technology mode are focused on...

1) posing complex questions;
2) formation and development of information competence;
3) development of skills of orderly, structured thinking, focused on the ability to work with information;

7. ... training is very close in its ideas and organizational forms to programmed training

1) distance;
2) computer;
3) modular

Tasks for *the experimental group.*

1. Determine whether the following statements are true

1. Any technology has means that activate and intensify the activities of students, in some technologies these means constitute the main idea and basis of the effectiveness of results.

2. One of the basic principles underlying developmental learning technology is that there is no development without activity.

3. When applying personality-oriented teaching methods, equal subjects of the pedagogical process are students, and not the teacher.

4. The teacher does not play a role in the application of case technology.

5. The principle of modularity implies the integrity and completeness, completeness and logic of the construction of units of educational material in the form of a system of educational elements.

2. Debate on "The importance of innovative teaching methods"

The group is divided into jury members and 2 teams, each of which defends a certain point of view:

Team A must advocate for the introduction of the most advanced technologies and approaches to teaching in university education;

Team B should discuss potential risks and challenges, including the digital divide and the need to preserve traditional teaching values.

The jury members choose a better reasoned point of view corresponding to the State Program of Innovative Development of the Republic of Belarus for 2021-2025 (see National Legal Internet Portal of the Republic of Belarus, at the link: https://pravo.by/document/? guid = 3871 & p0 = P32100348).

Exercises on topic 2.3

Task for *the control group*: choose the option that you think is correct

1. What technology personalizes the learning process by adjusting content according to individual achievements?

1) adaptive learning technology;
2) online assessments;
3) socio-emotional learning;
4) competency education

2. What tool supports continuous and comprehensive assessment of student achievement through digital means?

1) adaptive learning technology;
2) online assessments and e-portfolios;

3) competency education;
4) social-emotional learning

3. What term describes the integration of video conferencing and streaming media technologies for educational purposes?

1) blended learning;
2) socio-emotional learning;
3) adaptive learning technology;
4) distance learning

4. Who considered education the most important means of mental education and emphasized humanistic teaching methods?

1) I. P. Ivanov;
2) V.A. Sukhomlinsky;
3) A.N. Tubelsky

5. What educational model is focused on the formation of individual educational content and allows students to choose subjects?

1) school of self-determination;
2) blended learning;
3) competency education;
4) social-emotional learning

6. With whom is the concept of "collective creative work" in education associated?

1) I. P. Ivanov;
2) V.A. Sukhomlinsky;
3) A. N. Tubelsky;

7. What technology allows students to explore and interact with complex subjects in a simulated environment?

1) learning management systems
2) adaptive learning technology
3) virtual and augmented reality (VR/AR)
4) online assessments and e-portfolios

8. What highlights the importance of using big data and analytics to monitor and improve student performance?

1) social-emotional learning
2) competency education
3) data analysis
4) blended learning

Tasks for *the experimental group.*

1. Determine whether the following statements are true

1. Global and cultural competencies are not considered important in 2024 educational trends.

2. Competence-based education emphasizes strict adherence to traditional levels of learning.

3. Professional development for teachers in 2024 focuses on improving learning strategies and technology integration.

4. The flexible learning environment includes versatile rooms, mobile furniture and outdoor classrooms.

5. Blended learning combines traditional learning with online learning for flexibility and convenience.

6. Adaptive learning technology does not personalize the learning process according to individual students' performance.

7. Virtual and augmented reality (VR/AR) technologies are particularly useful in fields such as medicine, engineering and the natural sciences.

8. Online assessments and e-portfolios are not suitable for continuous and comprehensive assessment of student performance.

9. Tools such as chatbots and virtual assistants can help with student administrative tasks and queries.

2. **Take part in the educational game "Aquarium" to discuss the following questions in order** *(the group is divided into jury members and 2 teams of players, the players in their team discuss each question from the list below, then a representative of each team comes to the board and presents the answer of his team, and the jury members must evaluate the answers received):*

1. Assess the effectiveness of blended learning models in higher education and their potential to transform traditional teaching methods.

2. Explore the potential of virtual reality (VR) and augmented reality (AR) in improving STEM education and practical skills training.

3. Discuss the importance of accessibility and inclusiveness of educational technologies.

4. Discuss problems and solutions in the implementation of distance learning programs in higher education.

Exercises on topic 3.1

Task for the control group: choose the option that you think is correct

1. What is considered a key component of the activity structure of the innovation process?

1) financial resources;
2) motivation;
3) infrastructure;
4) curriculum

2. What is the role of teachers in innovative education?

1) observer;
2) tutor;
3) mentor;
4) head

3. Which of the following is not a component of an innovative educational environment?

1) modern educational technologies;
2) cooperation;
3) information and communication technology
4) traditional lectures

4. What component is not mentioned in the innovative educational environment?

1) educational content;
2) textbook training;
3) competence-activity approach;

4) set of teaching methods

5. What is a significant factor preventing the introduction of innovations in the educational process?

1) highly qualified teachers;
2) too many students;
3) excessive funding;
4) insufficient computer equipment

6. What type of training allows students to save time and money according to the document?

1) distance learning;
2) lecture training;
3) group study;
4) traditional group training

Tasks for *the experimental group.*

1. Determine whether the following statements are true

1. Innovation in education implies the introduction of new ideas into the goals, content, methods and forms of teaching.

2. Innovative technologies in education do not have a significant impact on higher education institutions.

3. The main tasks of innovation management in universities are to develop creative abilities and cultivate high-level talents.

4. Innovations in teaching imply keeping traditional pedagogical activities unchanged.

5. Educational innovations can only arise by chance, not through purposeful design.

6. The innovation process in education is static and unstructured.

7. Motivation is not a component of the activity structure in the innovation process.

8. The innovation management structure includes planning, organization, leadership and control.

9. Lack of computer equipment is not a barrier to innovation in education.

10. The main task of innovative education is mastering analytical thinking and self-development.

2. **Take part in the educational game "Aquarium" to discuss the following questions in order** *(the group is divided into jury members and 2 teams of players, the players in their team discuss each question from the list below, then a representative of each team comes to the board and presents the answer of his team, and the jury members must evaluate the answers received):*

1. The importance of innovative technologies in higher education institutions and how they can affect the preparation of talents.

2. The components of the activity structure in the innovation process and their importance.

3. The role of teachers in innovative education and how it differs from traditional educational roles.

4. The importance of motivation in the activity structure of the innovation process and how it affects the goals of innovation.

Exercises on topic 3.2

Task for *the control group*: choose the option that you think is correct

1. What are the main tasks of methodological work in educational institutions?

1) development of teaching methods;
2) reduction in student enrollment;
3) organization of extracurricular activities;
4) improving teaching methods

2. What activities are included in the methodological work of higher education institutions teachers?

1) curriculum development;
2) organization of entertainment events;
3) preparation of training materials;
4) class organization

3. What does innovative introduction into methodological work include?

1) traditional teaching methods;
2) modern information technologies;
3) increase the amount of homework;
4) exploring new approaches to learning

4. What are the key components of the teacher's individual methodological work?

1) group discussions;
2) class leadership;
3) self-education;
4) learning outcomes analysis

5. What is included in the scientific and methodological support of teachers' activities?

1) organization of excursions;
2) development of training documents and training programs;
3) present modern educational technologies;
4) financial audits

6. What is the purpose of monitoring in managing the professional activities of teachers?

1) diagnosis of the level of professional abilities;
2) constant monitoring and control;
3) cancellation of examinations;
4) reduction of teaching staff

7. What helps improve teaching auditing?

1) professional level of teachers
2) financial situation of teachers
3) teaching quality
4) university infrastructure

Tasks for *the experimental group.*

1. Determine whether the following statements are true

1. Methodological work is aimed at developing and improving methods of teaching disciplines.

2. The main task of methodological work is to reduce the workload of university teachers.

3. The organization of classes is not part of the educational activities of university teachers.

4. Implementation of innovations is a key aspect of the methodological work of university teachers.

5. Teachers do not participate in the development and revision of textbooks and teaching aids.

6. The activities of teachers in scientific and methodological support include the development of educational and methodological documents.

7. Monitoring allows constant observation and control over the teacher's progress towards professionalization.

8. Management of the professional activities of teachers does not include the study of the composition of the teaching staff.

2. Take part in the educational game "Six Hats" to discuss the following issues in order

The group is divided into six teams, each of which chooses one hat (by lot or at will). The color of the hat determines the direction of the team's work: 1) white is the most neutral (therefore, the members of this team operate only with facts, i.e. Prove why everything happened this way and not otherwise); 2) yellow — positive (therefore, the participants of this team are looking for the merits of the proposed solution, describing only the positive points); 3) black — negative (therefore, the participants of this team must express doubt, find arguments against); 4) red — emotions (therefore, the participants of this team express only the emotional perception of a given situation, without justifying their conclusions); 5) green — creative, creative (therefore, the members of this team offer new solutions to a given situation, which can be the most fantastic and unexpected); 6) blue — neutral, evaluative (therefore, the members of this team play the role of experts, analysts who evaluate the proposals of all groups and find the optimal solution).

Questions for discussion

1. How can personalized learning methods be adapted to different disciplines to maximize student engagement and learning outcomes? Share ideas for subjects that may particularly benefit from unique teaching strategies.

2. How can the "flipped classroom" pedagogical approach benefit the educational process in higher education?

3. What challenges do university teachers face in adapting to new educational technologies and how can they overcome these challenges?

Exercises on topic 3.3

Task for *the control group*: choose the option that you think is correct

1. What objects usually include technoparks?

1) shopping centers and cinemas;
2) laboratories and production facilities;
3) hospitals and clinics;
4) hotels and restaurants

2. The success of which technopark inspired the creation of similar parks around the world?

1) Tokyo Technology Park;
2) Silicon Valley Innovation Center;
3) Stanford Research Park;
4) Berlin Science Park

3. Which of the following do technoparks often offer to support startups?

1) free housing;
2) gym membership;
3) travel expenses;
4) business incubators

4. What industries is the Belarusian High Technology Park (HT) focused on?

1) IT industry;
2) agriculture;
3) nanotechnology;
4) biotechnology

5. What role do higher education institutions play in the success of technoparks?

1) provision of retail services;
2) provision of scientific and technological knowledge;
3) promoting sectoral cooperation;
4) research and development support

6. The formation of the Belarusian model of technoparks is characterized by:

1) weak government support;
2) strong government support;
3) strategic partnerships with academic institutions;
4) focus on low-tech industries

7. What types of cooperation are crucial for the success of technoparks?

1) collaboration between industry and academia;
2) government and public cooperation;
3) international partnership;
4) cultural exchange programs

Tasks for *the experimental group.*

1. Determine whether the following statements are true

1. Technoparks provide only financial services and do not include physical infrastructure.

2. The main goal of the Technopark is to create a favorable environment for innovation.

3. The Belarusian High Technology Park was established in 2005 to stimulate the development of the IT industry in Belarus.

4. Higher education institutions do not participate in the success of technology parks.

5. The Belarusian technology park model is characterized by strong State support and strategic partnership with academic institutions.

6. Technology parks associated with universities do not promote the commercialization of academic research.

7. The future development of technoparks in higher education institutions involves strengthening partnerships between universities and industry.

8. The Belarusian National Technical University (BNTU) has a technology park that cooperates with various industries to promote innovation and applied research.

9. Technoparks support only the semiconductor and information industries and do not include sectors such as biotechnology or renewable energy.

2. Participate in the training game "Aquarium" to discuss the following questions in order *(the group is divided into jury members and 2 teams of players, players*

in their team discuss each question below, then the representative of each team goes to the board and sets out the answer of his team, and the jury members must evaluate the answers received):

1. Assess the role of government support in the development and sustainability of technology parks. Use examples from different countries to illustrate your point.

2. Discuss the evolution of technoparks from the mid-20th century to the present day. Highlight the key stages and changes in their focus and structure.

3. Discuss potential future trends in the development of technology parks. How can technological advances and changes in the global economy affect their evolution?

Keys to exercise

<table>
<tr><td colspan="2">Module 1</td></tr>
<tr><td colspan="2">Topic 1.1</td></tr>
<tr><td>For the control group</td><td>For the experimental group</td></tr>
<tr><td>1-All are true; 2 – 4); 3 – 2); 4 – 3); 5 – 1); 6 – 4); 7 – 4); 8 – 1); 9 – 2); 10 – 1)</td><td>1-true; 2-wrong; 3-true; 4-true; 5-wrong; 6-true; 7-wrong, they need to be technologized</td></tr>
<tr><td colspan="2">Topic 1.2</td></tr>
<tr><td>1 – 3); 2 – 3); 3 – 3); 4 – 2); 5 – 2); 6 – 1), 2)</td><td></td></tr>
<tr><td colspan="2">Module 2</td></tr>
<tr><td colspan="2">Topic 2 .1</td></tr>
<tr><td>For the control group</td><td>For the experimental group</td></tr>
<tr><td rowspan="2">1 – 3), 4), 6), 8), 9); 2 –1); 3 – 2); 4 – 2)</td><td>active (1), interactive (2), competence (3), lecture (4), provide (5), certification (6)</td></tr>
<tr><td>1-wrong; 2-true; 3-true; 4-wrong; 5-wrong; 6-true</td></tr>
<tr><td colspan="2">Topic 2 .2</td></tr>
<tr><td>1 – 1); 2 –2); 3 – 3); 4 – 1); 5 – 1); 6 – 2), 3); 7 – 3)</td><td>1-true; 2-true; 3-wrong; 4-wrong; 5-true</td></tr>
<tr><td colspan="2">Topic 2.3</td></tr>
<tr><td>1 – 1); 2 –2); 3 – 4); 4 – 2); 5 – 1); 6 – 1); 7 – 3); 8 – 3)</td><td>1-wrong; 2-wrong; 3-true; 4-true; 5-true; 6-wrong; 7-true; 8-wrong; 9-true</td></tr>
<tr><td colspan="2">Module 3</td></tr>
<tr><td colspan="2">Topic 3.1</td></tr>
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<tr><td colspan="2">Topic 3.2</td></tr>
<tr><td>1 – 1),4); 2 –1),3),4); 3 – 2),4); 4 – 3),4); 5 – 2),3); 6 – 1),2); 7 – 1),3)</td><td>1-true; 2-wrong; 3-wrong; 4-true; 5-wrong; 6-true; 7-true; 8-wrong</td></tr>
<tr><td colspan="2">Topic 3.3</td></tr>
<tr><td>1 – 2); 2 – 3); 3 – 4); 4 – 1),3),4); 5 – 2),3),4); 6 – 2),3); 7 – 1),2),3)</td><td>1-wrong; 2-true; 3-true; 4-wrong; 5-true; 6-wrong; 7-true; 8-true; 9-Wrong</td></tr>
</table>

KNOWLEDGE CONTROL SECTION
Questions and literature on the topics of modules 1-3

Questions on topic 1.1

1. Code of the Republic of Belarus on Education 2022.
2. Activities of the Ministry of Education of the Republic of Belarus, the Republican Institute of Higher Education on planning, coordination and analysis of innovative work in higher education institutions.

Questions on topic 1.2

1. The objective need to introduce pedagogical technologies into the educational process of higher education institutions.
2. Historical analysis of the formation of the concept of "pedagogical technology". Essential characteristics of modern interpretations of the concept of pedagogical technology.
3. Components of pedagogical technology: objective, conceptual, content, procedural, diagnostic.
4. Classification of pedagogical technologies. Criteria for the effectiveness of pedagogical technology. Criteria for choosing pedagogical technology by a teacher.

Literature for self-preparation in module 1

1. Law of the Republic of Belarus of 14.01.2022 No. 154-3 "On Amendments to the Code of the Republic of Belarus on Education": adopted by the House of Representatives on 21 December 2021; approved by the Council of the Republic on 22 December 2021 [Electronic resource] // pravo.by/document. - Access mode: http:// pravo.by/document/?quid=12551&0=H12200154&p1=1. - Access date: 27.05.2024.

2. Mukhina, S. A. Modern innovative teaching technologies / S. A. Mukhina, A. A. Solovieva. - M.: GEOTAR-Media, 2008. - 360 p.

3. Tsyrkun, I. I. Innovative education of a teacher: on the way to professional creativity: a teaching aid for students of higher educational institutions studying in pedagogical specialties / I. I. Tsyrkun, E. I. Karpovich. - 2nd ed. - Minsk: BSPU, 2011. - 309 p.

Questions on topic 2.1

1. The main directions of modernization of the learning process in a higher education institution.
2. Active teaching methods, their role in organizing educational and cognitive activities of students. Interactive teaching methods, their classification and use in the learning process. Use of reflexive technologies in training sessions.
3. Pedagogical goal setting in the conditions of using innovative pedagogical approaches and technologies. "Competence" and "Competency". Designing the objectives of the training session on a competence basis.

Questions on topic 2.2

1. Basic technologies for activating and intensifying the educational activities of students (features and conditions of their implementation in higher education institutions).
2. Technologies of developmental learning. Technology of person-oriented learning. Problem learning technology. Case technology. Design technology. Technology of total absorption.

Questions on topic 2.3

1. Current directions of education of student youth.
2. Features of technologization of the educational process in a higher education institution.

Literature for self-preparation for module 2

1. Bezrukova, V. S. Pedagogy: textbook. Handbook/V. S. Bezrukova. -Rostov n/a: Phoenix, 2013. -381 p.

2. Vvedensky V.N. Modeling of the professional competence of the teacher//Pedagogy. – 2013. – № 10. -P.51.
3. Davydov, V.V. Theory of developmental learning/V.V. Davydov; Ross. Acad. Education, Psychol. Int., International. Associate "Developmental Learning." -M.: OPC "Intor", 1996. -542 p.
4. Zhuk, A.I. Active teaching methods in the system of advanced training of teachers: teaching method. Allowance/A.I. Zhuk, N.N. Wallet. -2nd ed. -Minsk: AVERSEV, 2004. -336 p.
5. Korepanova N.V. Professional and personal formation and development of a teacher//Pedagogy. – 2013. -№3. -pp. 66-71
6. Shukshina, Yu.A. Education of the 21st century: key competencies and new literacy/Yu.A. Shukshina, O.V. Suldina//Humanitar. Science and education. – 2019. -T. 10, No. 1. -pp. 90-94.

Questions on topic 3.1

1. The essence of the concept "innovative organization". Properties of a higher education institution as an innovative organization (adaptability, determination, value system).
2. Analysis of innovative infrastructure of leading institutions of higher education of the Republic of Belarus.

Questions on topic 3.2

1. Methodological work of the teacher, its types (educational-methodological, scientific-methodological). Methodological culture of the teacher, its components and connection with the development of innovative approaches and technologies.
2. Individual methodological activity of the teacher as a pedagogical system (characteristics of its structural and functional components).

Questions on topic 3.3

1. Science and technology park (technopark) as a territorial, scientific, technological and technical base for the implementation of innovative projects.
2. Scientific and technological park of BNTU "Polytechnic", its purpose, tasks, content of activities, achievements.

Literature for self-preparation for module 3

1. Kashlev, S.C. Interactive teaching methods: teaching method. Allowance/S.S. Kashlev. -2nd ed. -Minsk: Tetrasystems, 2013. -222 p.
2. King, A.D. Fundamentals of heuristic learning: textbook. A manual for listeners will complement the system. Adult Education in Ped. Specialties/A. D. Korol, I. F. Kiturko. -Minsk: BSU, 2018. -20 p.
3. Problem learning: past, present, future: col. Monogram : in 3 books. /A. M. Matyushkin [et al.]; Redcall. : E. V. Kovalevskaya (editor-in-chief) [and others]. -Nizhnevartovsk: Nizhnevart Publishing House. State Humanitarian. University, 2010. -3 kn.
4. Smirnov, S. D. Pedagogy and psychology of higher education: from activity to personality: textbook. Allowance for higher students. Study. Establishments/S.D. Smirnov. -3rd ed., erased. -M.: Academy, 2009. -271 p.
5. Trainev, V.A. Intensive pedagogical game technologies in humanitarian education (methodology and practice)/V. A. Trainev, I. V. Trainev. -M.: Publishing house-torg. Dashkov and K Corporation, 2006. -282 p.

Self-study questions

1. Modern higher education in the conditions of technologization of the educational process.
2. Technological innovation as a variety of pedagogical innovation, its specificity.
3. Organization of the process of mastering pedagogical technology by teachers in a higher education institution.
4. Characterization of leading innovative approaches as theoretical foundations of technologization of higher education.
5. Technologization of educational activity as a process of development (adaptation), testing and introduction of pedagogical technologies into the educational process.
6. Distinctive features of traditional and technological approaches to learning and upbringing processes.
7. Education as a pedagogical system. Technology for preparing and conducting the main types of training sessions (lecture, seminar, practical and laboratory session).
8. Technology for organizing independent educational work of students in an academic discipline. Modern technologies for monitoring and evaluating the results of students' educational activities (multi-level pedagogical tests, expert assessment method, portfolio, active assessment, etc.).
9. The concepts of "current certification", "intermediate certification", "final certification" and their role in the organization of the educational process.
10. Modular learning technology. The essence of the concept of "module". Module structure. Development of the module and organization of students' work with it. Drawing up a modular program of the discipline. Problem-modular learning technology. Rating systems for evaluating learning outcomes.
11. Technologies for developing the creative potential of students.
12. Technology of heuristic learning (basic provisions of pedagogical heuristics, use of heuristic methods and techniques in teaching).
13. Technology for developing students' critical thinking.
14. Technology of pedagogical workshops.
15. Designing a system of educational work in a higher education institution.
16. Essential characteristics of effective technologies for educating student youth. Humanistic technology of education (V. A. Sukhomlinsky, V. A. Karakovsky, etc.). System of collective creative education (I. P. Ivanov). A. N. Tubelsky School of Self-Determination.
17. Features of the use of interactive forms and methods of education (discussion, debate, business game, educational situations, etc.). Project technology in the educational process.
18. The concept of "innovation environment". Components of the innovative environment of an educational institution. Organization of innovative educational environment in higher education institution.
19. Theory and technology of the environmental approach in education. Requirements for the educational environment of a modern institution of higher education.
20. The work of a teacher on creation (EUMC) in an academic discipline that implements innovative pedagogical technologies.
21. Organization of methodological work of teachers based on the use of interactive methods and forms of interaction. Diagnosis of the teacher's professional skills. Diagnosis of professional needs and interests. Diagnosis of the level of formation of pedagogical skills.

22. History of technoparks. Formation of Belarusian model of development of technoparks. Technoparks of higher education institutions.
23. Prospects for development of innovative infrastructure of higher education institutions.

Tests for self-certification on the topics of modules 1-3

This section contains self-assessment tests and links to the final test on the quizziz.com website.

Test on topic 1.1

1. What is innovation in higher education?

(a) Innovation in higher education is a new form of cheat sheets for students;

(b) Innovation in higher education is the opportunity to use other people's coursework;

(c) Innovation in higher education is a way to bypass knowledge and pass exams;

(d) Innovation in higher education is the introduction of new technologies, teaching methods and learning approaches to improve the quality of education.

2. What innovations in the field of higher education does the Republic of Belarus use?

(a) Distance learning, the introduction of modern technologies into the educational process and the creation of joint educational programmes with foreign universities are actively developing in Belarus;

(b) The Republic of Belarus uses the innovation of teaching robots to conduct classes;

(c) In Belarus, innovations have been introduced in higher education in the form of teleportation of students to classes;

(d) The Republic of Belarus uses innovations in the form of technology for learning through dreams.

3. How innovations help to improve the quality of education in the Republic of Belarus?

(a) Innovations in the Republic of Belarus allow students to purchase diplomas;

(b) Thanks to innovations, students in Belarus can take exams remotely without attending classes;

(c) Innovations in education in Belarus consist in providing students with the opportunity to order coursework from third parties;

(d) Innovations contribute to improving the accessibility of education, raising the level of educational programs, adapting the educational process to modern requirements of the labor market.

4. What obstacles may arise when introducing innovations into higher education in Belarus?

(a) Lack of books in libraries can be an obstacle to innovation;

(b) Lack of funding, lack of skilled professionals, resistance from educational institutions can hamper innovation.

(c) The limited financial capacity of universities in Belarus may hinder the introduction of innovation in education;

(d) Teachers' reluctance to use modern technology can be a barrier to innovation.

5. What prospects open up for higher education in Belarus thanks to innovations?

(a) Students will be able to obtain higher education in a short time by taking online tests only;

(b) Thanks to innovation, universities in Belarus will be able to abandon teaching and refocus on the development of sport;

(c) Innovation promotes international cooperation, creates attractive programmes for students, trains specialists in demand in the labour market;

(d) Innovations will allow universities in Belarus to offer students the opportunity to obtain diplomas without taking exams.

Test on topic 1.2

1. What can improve the quality of higher education due to the technologization of educational activities?

(a) Improving the quality of higher education as a result of technology may result in the abolition of examinations and the granting of diplomas for payment;

(b) Technologization of education can improve the quality of higher education through the use of artificial intelligence without the involvement of teachers;

(c) Improving the quality of higher education through technology can be achieved by moving all classes online without the need for face-to-face communication;

(d) Increasing the accessibility of education through online courses and distance learning, personalization of the educational process through adaptive learning programmes and interactive technologies.

2. What innovations in the field of educational technology can contribute to improving the quality of education in universities?

(a) Mandatory use of only obsolete technologies for student training;

(b) Replacing teachers with robots for all training sessions;

(c) The use of virtual and augmented reality for more visual and interactive learning, the use of data analytics to optimize the learning process and adapt content to the needs of students;

(d) Introducing a system of negative reinforcement for students who do not use technology in the educational process.

3. What challenges may arise when introducing new technologies into the educational process and how to overcome them?

(a) The impossibility of using new technologies due to the absence of problems and challenges in the educational process;

(b) Inadequate skills of teachers to work with new technologies that require special training, the need to constantly update software and equipment, which may require additional financial costs;

(c) A "no-look" approach to all the technical aspects of the new technology, counting on its automatic adaptation to the educational process;

(d) Ignoring the challenges and problems associated with the introduction of new technology in the hope that they will resolve themselves.

4. How can the technologization of educational activities contribute to the development of critical thinking and independence skills in students?

(a) Providing access to a wide range of information through the Internet and digital libraries, allowing students to search and analyse data independently. Use of educational games and interactive platforms to develop logical thinking and decision-making;

(b) Dependence on technology may reduce students' need to work independently on material and develop critical thinking;

(c) Misuse of technology can lead to the formation of a habit of focusing only on ready-made answers, reducing students' initiative and independence;

(d) Technologization of educational activities can lead to the loss of critical thinking skills due to excessive automation of processes.

5. What are the prospects for the development of technological education in the future and what new technologies can be introduced to improve the educational process?

(a) Technologization of education can lead to a decrease in student involvement in the educational process due to excessive automation;

(b) The introduction of new technologies in education may reduce the quality of learning, as students may become dependent on electronic devices;

c) Expanded use of artificial intelligence to personalize learning and predict student needs, implementation of blockchain technologies to validate student achievements and ensure transparency in higher education;

(d) Prospects for the development of technology in education may lead to the exclusion of the human element in the learning process, which may negatively affect the interaction between teacher and students.

Test on topic 2.1

1. What teaching technologies are used in modern higher education institutions?

(a) Modern higher education institutions use learning technologies based solely on traditional methods of knowledge transfer without the use of modern computing tools;

(b) Modern institutions of higher education do not use any teaching technology, students study exclusively on their own without the aid of new technologies;

(c) Modern higher education institutions do not use teaching technology, they rely entirely on outdated methods of lectures and books to convey information to students;

(d) Modern higher education institutions use learning technologies such as distance learning, online courses, interactive lectures and webinars.

2. What technologies help to organize effective independent learning of students?

(a) Only technologies of the last century, such as printed textbooks and blackboards, are used to organize effective self-study of students;

(b) Technologies such as e-textbooks, online tests and case-based learning are used to facilitate effective self-study of students;

(c) Effective self-study of students is possible without the use of any technology, because students can learn exclusively on their own;

(d) Technologies that help organize effective self-study of students are absent, so students have to study without any support.

3. What technologies help teachers to individualize the educational process?

(a) To personalize the educational process, teachers use e-learning systems, adaptive learning platforms and personalized learning materials;

(b) To personalize the educational process, teachers can use only obsolete textbooks and notebooks, ignoring modern technology;

(c) Technology does not contribute in any way to the individualization of the educational process, so teachers can do without its use in their work;

(d) Teachers can individualize the educational process using only traditional teaching methods.

4. What technologies help increase the activity and involvement of students in the educational process?

(a) The use of voice recorders and cassette recordings for teaching activities promotes student engagement and engagement;

(b) The use of telegraph lines and signal flags for communication in the learning process helps to motivate students;

(c) Technologies such as gamification of education, virtual laboratories and multimedia presentations are used to stimulate student engagement and engagement;

(d) Using pencils and paper instead of modern electronic devices is the best way to increase student engagement and engagement.

5. What technologies help to assess the quality of the educational process and the effectiveness of learning?

(a) The use of voice recorders and cassette recordings for teaching activities promotes student engagement and engagement;

(b) The use of telegraph lines and signal flags for communication in the learning process helps to motivate students;

(c) Using pencils and paper instead of modern electronic devices is the best way to increase student engagement and engagement;

(d) Technologies such as online testing, educational data analytics and electronic student portfolios are used to assess the quality of the educational process and the effectiveness of learning.

Test on topic 2.2

1. What are the main characteristics of modern teaching technologies in a higher education institution?

(a) The presence of built-in tape recorders and video recorders in university classrooms facilitates effective teaching;

(b) Modern learning technologies include the use of interactive online platforms, the creation of virtual classrooms, the use of multimedia materials, the personalization of the educational process, etc.;

(c) The use of Gordian knot and reed to communicate information between students and teachers is an integral part of teaching technology in higher education institutions;

(d) The use of pneumatic tubes and telegraphy for the transmission of knowledge in a higher education institution is one of the main features of modern teaching technology.

2. What conditions are necessary for the effective implementation of modern teaching technologies in a higher education institution?

(a) The availability of a typewriter and typewriter to support modern teaching technology in a higher education institution;

(b) The mandatory use of incandescent lamps and smoke screens to create a learning atmosphere in a higher education institution;

(c) Strictly prohibit the use of the Internet and smartphones for the effective implementation of modern learning technologies in higher education institutions;

(d) Successful implementation of modern learning technologies requires high-speed Internet, access to modern equipment, qualified teachers, trained audiences, etc.

3. What advantages do modern teaching technologies provide to students in higher education institutions?

(a) Access to telegraph and attendance equipment to improve the learning process of students;

(b) The possibility of using pigeon mail and radiotelegraphy as part of modern technology for teaching students in higher education institutions;

(c) The possibility of exchanging information with the help of homeopathic remedies and bohemian techniques provided by modern teaching technologies;

(d) Modern learning technologies contribute to increasing the accessibility of education, increasing the motivation of students, individualizing learning, developing creativity and autonomy, and improving the quality of learning.

4. What challenges may arise when introducing modern teaching technologies in a higher education institution?

(a) Challenges that a higher education institution may face in implementing modern teaching technologies include the need to train teachers, the increased costs of structuring and updating the educational programme, the lack of full universality of technology for all students, etc.;

(b) The risk of radiation contamination in the use of modern teaching technologies in higher education institutions;

(c) The lack of suitable electrical outlets for modern teaching technology in higher education institutions;

(d) Lack of suitable cable connections for launching modern learning technologies in higher education institutions.

5. What is the role of heads of higher education institutions in the successful implementation of modern teaching technologies?

(a) Complete disregard by the heads of higher education institutions of the need to introduce modern teaching technologies;

(b) Actively obstructing the introduction of modern teaching technologies by higher education institutions;

(c) Heads of higher education institutions play an important role in the successful implementation of modern learning technologies, they must provide the necessary resources, support students and teachers, develop a strategy for the introduction of new technologies and evaluate their effectiveness;

(d) Responsibility for the selection of higher education institution leaders for failures in the successful implementation of modern teaching technologies.

Test on topic 2.3

1. What are the basic principles underlying promising technologies for educating young students?

(a) The principles of humanization, individualization, activity and interactivity;

(b) The principle of delaying the process of updating the technology of educating young students;

(c) The principle of focusing on obsolete methods and approaches in the framework of promising technologies for the education of students;

(d) The principle of ignoring the individual needs of students in the development of promising educational technologies;

2. What innovative methods are used to educate young students?

(a) The use of old teaching materials without adaptation to modern requirements as an innovative method of educating students;

(b) Project-based learning, game technology, online learning, mentoring;

(c) Conducting classes without interactive and online technologies, using only oral forms of instruction as an innovative method of educating students;

(d) The application of outdated approaches to discipline and control in the university environment as an innovative method of educating students.

3. How do promising educational technologies affect the development of students' personal qualities?

(a) Advanced educational technologies negatively affect the development of students' personal qualities, leading to their disorientation and negative behaviour;

(b) Prospective educational technologies do not affect the development of students' personal qualities, as they are not adapted to individual needs;

(c) Prospective educational technologies promote the development of superficial personality traits of students, ignoring deeper aspects and values;

d) Allow to develop creativity, independence, communication skills, critical thinking.

4. What advantages do promising technologies for educating young students provide over traditional methods?

A) Greater efficiency of teaching, the fascination of the process, the possibility of an individual approach to each student;

(b) Promising technologies for educating students reduce the effectiveness of teaching and do not contribute to the formation of critical thinking in students;

(c) Advanced student education technologies are not individualized and do not foster the creativity of young people, unlike traditional methods;

(d) Advanced technologies for the education of students do not provide any advantages over traditional methods, but rather hinder the learning and development of young people.

5. What challenges and problems arise when introducing promising technologies for educating student youth?

(a) The introduction of advanced educational technologies creates the problem of students' inability to adapt and use new technologies;

(b) The need to update the technical base, train teachers to use new technologies, resistance from some students;

(c) The introduction of advanced educational technologies can lead to a deterioration of the relationship between students and teachers due to the lack of face-to-face communication in the learning process;

(d) One of the challenges in the introduction of promising educational technologies is the lack of adequate training of teachers to work with new technologies.

Test on topic 3.1

1. What makes a higher education institution an innovative organization?

(a) It becomes an innovative organization due to the lack of access to modern technology and training methods;

(b) It constantly seeks new ways of teaching and research, introduces new technologies and methods, develops new curricula;

(c) It focuses only on traditional learning technologies;

(d) It ignores the use of new methods and advanced scientific research.

2. How does innovation contribute to the development of a higher education institution?

(a) Innovation helps an institution attract students and faculty, improve the quality of teaching and research, increase financial support and enter new markets;

(b) Innovations can lead to the destruction of the institution of higher education if they do not take into account the traditions and history of the institution;

(c) Innovation may displace traditional teaching methods, which may lead to a loss of the quality of education in a higher education institution;

(d) Innovation can slow down the development of a higher education institution if it does not meet the needs of students and teachers.

3. What examples of successful innovations in higher education institutions can be cited?

(a) New curricula developed without the participation of students and teachers are considered successful innovations;

(b) The establishment of strict rules and restrictions on the use of technology and online education is considered a successful innovation in higher education institutions;

(c) The use of only traditional teaching methods without the introduction of new technologies is considered a successful example of innovation in higher education institutions;

d) This is the introduction of online learning, the use of technology in educational processes, the creation of innovation centers and start-up incubators, the development of new programs and teaching methods.

4. How can a higher education institution stimulate innovation in its students?

(a) Prohibit students from studying new technologies and using them in educational projects;

(b) Restrict access to library resources and databases to encourage self-discovery;

c) Creation of special programs and projects, cooperation with industry and start-ups, provision of financial support and equipment;

(d) The introduction of strict evaluation criteria that limit experimentation and creativity.

5. What advantages does the development of a higher education institution as an innovative organization bring to society?

(a) New technologies and scientific developments, raising the level of education and skills of specialists, developing the country's economy and technological potential, improving the quality of life of citizens;

(b) The decline in the accessibility of higher education to the general population due to the increase in the cost of education;

(c) Limiting the development opportunities of learners due to a strong focus on theoretical knowledge without applying it in practice;

(d) Increased competition among higher education institutions, which may lead to a reduction in the number of educational programmes available.

Test on topic 3.2

1. What are the main tasks of organizational and methodological support of technological innovations in higher education institutions?

(a) Restricting access to innovation only to certain students and teachers, excluding other categories of employees of the educational institution;

(b) Preventing the free exchange of ideas and experiences between different institutions of higher education, which hinders the process of innovation;

(c) Mandatory training activities only for members of the educational institution, excluding external participants and experts;

d) Organization of training activities for staff, development and implementation of innovative teaching methods, evaluation of the effectiveness of innovations, support of

intra-university exchange of experience, creation of partnerships with external innovative organizations.

2. What methods are effective for monitoring and evaluating the results of technological innovations in higher education institutions?

A) Ignoring the entire monitoring and evaluation process, since the results of innovations are considered irrelevant to the educational institution;

b) Questionnaire of students and teachers, analysis of statistical data of training, audit of the educational process, use of quantitative and qualitative research methods, comparative analysis with previous indicators;

(c) Conducting an anonymous survey of students and teachers without asking specific questions about innovation;

(d) Use only qualitative methods of evaluation, discarding quantitative analysis of innovation results.

3. How does organizational and methodological support of technological innovations contribute to improving the quality of education in higher education institutions?

A) Ensures the relevance of educational programs, promotes the development of creativity of students and teachers, increases the accessibility of education through the use of online technologies, improves the process of self-evaluation and self-regulation in the educational process, draws attention to the importance of innovation in education;

(b) The use of outdated and outdated methods of accompaniment that do not take into account the needs of modern education;

c) Complete disregard of recommendations and feedback from students and teachers in the process of organizational and methodological support;

d) The absence of any organizational and methodological support for innovations, since it is considered superfluous in the educational process.

4. What are the possible obstacles to technological innovation in higher education institutions and how can they be overcome?

(a) Lack of demand and interest on the part of students and teachers, which makes the introduction of technological innovation pointless;

(b) Lack of qualified information technology specialists in the institution, which may lead to improper implementation and use of new technologies;

(c) Budget constraints on the purchase and maintenance of modern hardware and software, which make it impossible to successfully implement technological innovations;

(d) Insufficient management support, lack of necessary financial resources, inadequate staff qualifications, gap between university needs and capacity, low level of student and faculty interest.

5. What methodological approaches can be used for successful implementation of technological innovations in higher education institutions?

(a) A passive approach, in which teachers and students do not participate in the process of introducing new technologies, but simply wait for the results;

(b) Individual approach to students and teachers, ensuring the availability of information on new technologies, holding regular training events and workshops, supporting constructive feedback, creating a motivational environment for active use of technologies;

(c) One-off approaches that use temporary or ad hoc approaches to the introduction of new technologies that do not take into account the long-term perspective and needs of the institution;

d) Isolation approach, in which each faculty or department in the institution works differently without sharing experience and knowledge on the implementation of technological innovations.

Test on topic 3.3

1. What tools to support scientific and innovative activities are available to higher education institutions?

(a) Emotional support, in which higher education institutions provide advice and kind words to their researchers, but not financial or organizational support;

(b) Higher education institutions may receive research grants, participate in research projects, have their own research laboratories;

(c) Isolated instruments provided to higher education institutions that are not coordinated with other organizations and are not implemented as part of systemic research and innovation support programmes;

(d) Tools that predict the success of scientific and innovative activities based on mystical knowledge and premonitions.

2. How can higher education institutions encourage their staff to engage in scientific activities?

(a) By threat of dismissal in case of lack of activity in scientific activities;

(b) By providing higher education personnel with free access to reference literature and equipment;

(c) By restricting the freedom of action and autonomy of staff, giving them strict instructions and a framework for research work;

(d) By providing the opportunity to participate in conferences and seminars, paying for the publication of articles in scientific journals, awarding scientific scholarships.

3. What is technology transfer and how can it be implemented in a higher education institution?

(a) Technology transfer is the process of transferring technology between different institutions of higher education by means of teleportation;

(b) Technology transfer is the process by which students exchange technological knowledge and skills in the labour market;

(c) Technology transfer is the process of transferring knowledge and technology from science to practice. In a higher education institution, this can be done through the creation of startups, patenting developments, cooperation with business;

(d) Technology transfer is the process of technology transfer by a higher education institution through caches and secret code words.

4. What avenues of cooperation can exist between higher education institutions and industry?

(a) This could be joint research, student internships, outsourcing of research, innovation laboratories;

(b) Ways of cooperation between higher education institutions and industry include the use of telepathy to transfer knowledge;

c) Higher education institutions and industry can cooperate through the exchange of students on production lines;

(d) Higher education institutions and industry can cooperate through the exchange of goods for training programmes.

5. How can higher education institutions assess the effectiveness of their research and innovation activities?

(a) by the number of textbooks sold;

(b) by the number and quality of scientific publications, attracting funding for research, commercialization of scientific results, expanding cooperation with industry;

(c) by the number of publications;

(d) by surveying students about the color of owl feathers.

Keys to tests

Topic 1.1	1 – d); 2 – a); 3 – d); 4 – b); 5 – c)
Topic 1.2	1 – d); 2 – c); 3 – b); 4 – a); 5 – c)
Topic 2.1	1 – d); 2 – c); 3 – a); 4 – c); 5 – d)
Topic 2.2	1 – b); 2 – d); 3 – d); 4 – a); 5 – c)
Topic 2.3	1 – a); 2 – b); 3 – d); 4 – a); 5 – b)
Topic 3.1	1 – b); 2 – a); 3 – d); 4 – c); 5 – a)
Topic 3.2	1 – d); 2 – b); 3 – a); 4 – d); 5 – b)
Topic 3.3	1 – b); 2 – d); 3 – c); 4 – a); 5 – b)

To take the final test, students need to point their smartphone camera at the test QR code, which the teacher will open via a link on a large monitor. Test participants complete it simultaneously, and the results are assessed automatically in real time (both for each student and for the entire group).

https://quizizz.com/admin/quiz/665b3b43cb1e67141b74d530/%D0%B5%D0%B3%D0%BE%D1%80

Auxiliary section

Curriculum of higher education institution
In the academic discipline "Innovations in Higher Education"

The curriculum is compiled on the basis of the OSVO educational standard 7-06-0111-01-2023

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(Protocol No. ____ Section No. ____ dated _____ 2024)

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EXPLANATORY NOTE

The curriculum of a higher education institution in the academic discipline "Innovations in higher education" was developed in accordance with the requirements of the educational standard OSVO 7-06-0111-01-2023 for the specialty 7-06-0111-01-2023 "Scientific and pedagogical activity", profiling "Pedagogy of vocational education".

Purpose and objectives of the academic discipline

The purpose of the academic discipline is theoretical and practical preparation of future masters for the implementation of innovative approaches and technologies that ensure the efficiency and quality of pedagogical activities and educational process in vocational education institutions.

The ***main objectives*** of the discipline are:

– mastering knowledge about the main technological innovations in the vocational education system;

– formation of students' skills to choose and use modern pedagogical technologies in the educational process;

– formation of skills for mastering innovative approaches and technologies, their introduction into the educational process of a vocational education institution.

Place of the academic discipline in the master's training system, connections with other academic disciplines

The academic discipline "Innovations in higher education" is based on the knowledge acquired by students during the development of the educational program of higher education when studying such disciplines as: "Pedagogy", "Professional pedagogy", "Fundamentals of scientific research and innovative activities", etc.

In the process of studying the discipline, interdisciplinary connections with academic disciplines studied during the development of the educational program of advanced higher education are also updated: "Current directions of education development", "Methodology of scientific and pedagogical research", "Research seminar".

The knowledge and skills acquired by undergraduate students in mastering the discipline are necessary to solve theoretical, experimental and applied problems in the process of preparing a dissertation for a master's degree, as well as in the course of further pedagogical and research work in educational institutions.

Requirements for mastering the academic discipline in accordance with the educational standard

As a result of studying the academic discipline "Innovations in higher education", the student must

Know:

– distinctive features of traditional and innovative approaches to the processes of teaching and upbringing, essential characteristics of leading innovative approaches in education (competence, personal development, problem-based, modular, environmental, etc.);

– conceptual provisions of technologization of pedagogical activity and educational process in educational institutions;

– theoretical and methodological foundations of designing pedagogical technologies;

– characteristics of the main innovative pedagogical technologies, features and conditions of their use in the educational process of vocational education institutions;

Be able to:

– master innovative pedagogical technologies and introduce them into the educational process, taking into account the goals and content of the taught academic discipline, the specialty of students, the requirements of the labor market;

– develop diagnostic tools for measuring the results of training and upbringing in the form of competencies of students;

– analyze the effectiveness of innovative educational technologies;

Own:

– methods and means of pedagogical influence on the personality of the student in accordance with his age and individual characteristics;

– technologies for the formation of a nurturing and developing educational environment in an educational institution.

Mastering the academic discipline "Innovations in higher education" provides the formation of the following competencies:

UK-5 Develop innovative receptivity and ability to innovate

The total number of hours and the number of classroom hours allocated to the study of the academic discipline in accordance with the educational standard

According to the curriculum, the following are allocated for the study of the discipline:

– for the full-time form of higher education, only 96 hours, of which classroom – 38 hours (lectures – 16 hours, practical classes – 22 hours);

– for correspondence form of higher education only 96 hours, of which classroom-14 hours. (lectures – 6 hours, practical classes – 8 hours).

The distribution of classroom hours by semester and types of classes is given in Tables 1, 2.

Table 1.

Full-time form of education					
Course	Semester	Lectures, h.	Laboratory classes, h.	Practical classes, h.	Current Attestation Form
1	2	16	–	22	Exam

Table 2.

Correspondence form of education					
Course	Semester	Lectures, h.	Laboratory classes, h.	Practical classes, h.	Current Attestation Form
1	2	6	–	8	Exam

CONTENT OF THE STUDY MATERIAL

Section 1. CONCEPTUAL BASIS OF TECHNOLOGIZATION OF HIGHER EDUCATION

Topic 1.1. Innovations in higher education of the Republic of Belarus as a way to improve its quality

Code of the Republic of Belarus on Education 2022. Activities of the Ministry of Education of the Republic of Belarus, the Republican Institute of Higher Education on planning, coordination and analysis of innovative work in higher education institutions.

Modern higher education in the conditions of technologization of the educational process. Technological innovation as a variety of pedagogical innovation, its specificity. Organization of the process of mastering pedagogical technology by teachers in a higher education institution.

Topic 1.2. Technologization of educational activities as a way to improve the quality of higher education

The objective need to introduce pedagogical technologies into the educational process of higher education institutions. Historical analysis of the formation of the concept of "pedagogical technology". Essential characteristics of modern interpretations of the concept of pedagogical technology.

Components of pedagogical technology: objective, conceptual, content, procedural, diagnostic. Classification of pedagogical technologies. Criteria for the effectiveness of pedagogical technology. Criteria for choosing pedagogical technology by a teacher. Characterization of leading innovative approaches as theoretical foundations of technologization of higher education.

Technologization of educational activity as a process of development (adaptation), testing and introduction of pedagogical technologies into the

educational process. Distinctive features of traditional and technological approaches to learning and upbringing processes.

Section 2. TECHNOLOGICAL FOUNDATIONS OF THE EDUCATIONAL PROCESS IN HIGHER EDUCATION INSTITUTIONS

Topic 2.1. Technologies for organizing the main activities of teachers and students in higher education institutions

The main directions of modernization of the learning process in a higher education institution. Active teaching methods, their role in organizing educational and cognitive activities of students. Interactive teaching methods, their classification and use in the learning process. Use of reflexive technologies in training sessions.

. Pedagogical goal setting in the conditions of using innovative pedagogical approaches and technologyThe concept of "competence" and "competence" Designing the goals of an educational session on a competence basis. .

Training session as a pedagogical systemTechnology for preparing and conducting the main types of training sessions (lecture, seminar, practical and laboratory session).. Modern technologies for monitoring and evaluating the results of students' educational activities (multi-level pedagogical tests, expert assessment method, portfolio, active assessment, etc.). . The concepts of "current certification", "intermediate certification", "final certification" and their role in the organization of the educational process.

Topic 2.2. Characteristics of modern teaching technologies and conditions for their implementation in higher education institutions

Basic technologies for activating and intensifying the educational activities of students (features and conditions of their implementation in higher education institutions).

Technologies of developmental learning. Technology of person-oriented learning. Problem learning technology. Case technology. Design technology. Technology of total absorption.

Modular learning technology. The essence of the concept of "module". Module structure. Development of the module and organization of students' work with it. Drawing up a modular program of the discipline. Problem-modular learning technology. Rating systems for evaluating learning outcomes.

Technologies for developing the creative potential of students. Technology of heuristic learning (basic provisions of pedagogical heuristics, use of heuristic methods and techniques in teaching). Technology for developing students' critical thinking. Technology of pedagogical workshops.

Topic 2.3. Characteristics of promising technologies for educating student youth

Current directions of education of student youth. Features of technologization of the educational process in a higher education institution. Designing a system of educational work in a higher education institution.

Essential characteristics of effective technologies for educating student youth. Humanistic technology of education (V. A. Sukhomlinsky, V. A. Karakovsky, etc.). System of collective creative education (I. P. Ivanov). A. N. Tubelsky School of Self-Determination.

Features of the use of interactive forms and methods of education (discussion, debate, business game, educational situations, etc.). Project technology in the educational process.

Section 3. INNOVATIVE INFRASTRUCTURE OF HIGHER EDUCATION INSTITUTIONS

Topic 3.1. Higher Education as an innovative organization

The essence of the concept "innovative organization". Properties of a higher education institution as an innovative organization (adaptability, determination, value system). Analysis of innovative infrastructure of leading institutions of higher education of the Republic of Belarus.

The concept of "innovation environment". Components of the innovative environment of an educational institution. Organization of innovative educational environment in higher education institution.

Theory and technology of the environmental approach in education. Requirements for the educational environment of a modern institution of higher education.

Topic 3.2. Organizational and methodological support of technological innovations in higher education institutions

Methodological work of the teacher, its types (educational-methodological, scientific-methodological). Methodological culture of the teacher, its components and connection with the development of innovative approaches and technologies.

Individual methodological activity of the teacher as a pedagogical system (characteristics of its structural and functional components). The work of a teacher on creation (EUMC) in an academic discipline that implements innovative pedagogical technologies.

Organization of methodological work of teachers based on the use of interactive methods and forms of interaction. Diagnosis of the teacher's professional skills. Diagnosis of professional needs and interests. Diagnosis of the level of formation of pedagogical skills.

Topic 3.3. Organization of scientific and innovative activities in higher education institutions

Science and technology park (technopark) as a territorial, scientific, technological and technical base for the implementation of innovative projects. History of technoparks. Formation of Belarusian model of development of technoparks. Technoparks of higher education institutions. Scientific and technological park of BNTU "Polytechnic", its purpose, tasks, content of activities, achievements. Prospects for development of innovative infrastructure of higher education institutions.

Educational and methodological map of the academic discipline

Full-time form of education

Section number, topic	Section name, topic	Number of classroom hours				Number of hours USR	Knowledge control form
		Lectures	Practical Occupation	Seminary Occupation	Laboratory Occupation		
1	2	3	4	5	6	7	8
1.	**Conceptual foundations of technologization of higher education**	**4**	**6**				
1.1	Innovations in higher education of the Republic of Belarus as a way to improve its quality	2	2				Oral survey
1.2	Technologization of educational activities as a way to improve the quality of higher education	2	4				Written survey
2.	**Technological basis of the educational process in higher education**	**6**	**8**				
2.1	Technologies for organizing the main activities of teachers and students in higher education institutions	2	2				Discussion-based assessment
2.2	Characteristics of modern teaching technologies and conditions of their implementation	2	4				Giving reports and presentations
2.3	Characteristics of prospective technologies of education of students	2	2				Pedagogical tests
3.	**Innovative infrastructure of higher education institutions**	**6**	**8**				
3.1	Higher Education as an Innovative Organization	2	2				Oral survey
3.2	Organizational and methodological support of technological innovations in higher education institutions	2	4				Protection of individual tasks
3.3	Organization of scientific and innovative activities in higher education institutions [1]	2	2				Pedagogical tests
	Total for the semester	**16**	**22**				Exam
	Total classroom hours	**38**					

[1] Training sessions on this topic are held at the Scientific and Technological Park of BNTU "Polytechnic".

EDUCATIONAL AND METHODOLOGICAL CARD OF THE ACADEMIC DISCIPLINE
Correspondence form of education [2]

Section number, topic	Section name, topic	Number of classroom hours				Number of hours USR	Knowledge control form
		Lectures	Practical Occupation	Seminary Occupation	Laboratory Occupation		
1	2	3	4	5	6	7	8
1.	**Conceptual foundations of technologization of higher education**	**2**	**2**				
1.1	Innovations in higher education of the Republic of Belarus as a way to improve its quality	1	1				Oral survey
1.2	Technologization of educational activities as a way to improve the quality of higher education	1	1				Written survey
2.	**Technological basis of the educational process in higher education**	**2**	**2**				
2.1	Technologies for organizing the main activities of teachers and students in higher education institutions	1					Discussion-based assessment
2.2	Characteristics of modern teaching technologies and conditions of their implementation	1					
2.3	Characteristics of prospective technologies of education of students		2				Giving reports and presentations
3.	**Innovative infrastructure of higher education institutions**	**2**	**4**				
3.1	Higher Education as an Innovative Organization	1					2
3.2	Organizational and methodological support of technological innovations in higher education institutions	1	2				Protection of individual tasks
3.3	Organization of scientific and innovative activities in higher education institutions		2				Teaching test
	Total for the semester	**6**	**8**				Exam
	Total classroom hours	**14**					

[2] Topics of the educational material not specified in the educational and methodological map are allocated for independent study by students.

INFORMATIONAL AND METHODOLOGICAL PART

References

Basic literature

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Methodological recommendations for the organization and implementation of independent work of students in the academic discipline

When mastering the academic discipline, it is recommended to use the following forms of independent work of students: working through questions submitted for independent study; completing individual and group assignments; performing information and bibliographic searches, compiling a thematic selection of literary sources; preparing thematic reports and messages, presentations on given topics; preparing for a discussion, business game, mini-conference; preparing for an exam.

List of recommended diagnostic tools

The student's knowledge level is assessed on a ten-point scale in accordance with the criteria approved by the Ministry of Education of the Republic of Belarus.

To assess the student's achievements, it is recommended to use the following diagnostic tools: oral and written surveys; pedagogical tests; defense of individual and group assignments completed during classes and as part of independent work; assessment based on the results of participation in the discussion of problems, debates, and collective reflection during classes; solving pedagogical problems and situations during classes; a master's student's presentation with a prepared report and presentation at a mini-conference; defense of educational research projects; passing an exam in an academic discipline.

List of practical activities

1. Innovations in higher education of the Republic of Belarus as a way to improve its quality
2. Technologization of educational activities as a way to improve the quality of higher education
3. Technologies for organizing the main activities of teachers and students in higher education institutions
4. Characteristics of modern teaching technologies and the conditions for their implementation in a higher education institution
5. Characteristics of promising technologies for educating student youth
6. Higher education institution as an innovative organization
7. Organizational and methodological support for technological innovations in higher education institutions
8. Organization of scientific and innovative activities in a higher education institution

Characteristics (description) of innovative approaches to teaching the academic discipline

Achieving the goals and objectives of studying the academic discipline "Innovative approaches and technologies in the educational process" is possible based on the use of:

– problem learning methods, interactive and communicative technologies (discussions, mini-conferences, brainstorming, mutual learning, reflection methods);

– visual materials for training sessions in the form of structural and logical diagrams, tables, posters, presentations, educational videos;

– educational and research projects on individual topics, including search, study and analysis of scientific and methodological literature, analysis of educational practice and generalization of pedagogical experience, conducting a pedagogical mini-experiment on the implementation of a sound technology of teaching or upbringing, defense of the project using computer presentations, performance of opponents, discussion.

List of questions for the exam in the academic discipline

1. Innovations in higher education of the Republic of Belarus as a way to improve its quality
2. Organizational and methodological support for technological innovations in higher education institutions
3. Technologization of educational activities as a way to improve the quality of higher education

4. Technologies for organizing the main activities of teachers and students in higher education institutions
5. Higher education institution as an innovative organization
6. Characteristics of promising technologies for educating students
7. Characteristics of modern teaching technologies and the conditions for their implementation in a higher education institution
8. Characteristics of modern teaching technologies and the conditions for their implementation in a higher education institution
9. Modern higher education in the context of technologization of the educational process (structure, modernization, main documents)
10. The concept of “innovative organization” (essence, properties of a higher education institution as an innovative organization - adaptability, purposefulness, value system)
11. The concept of “innovative environment” (essence, components of the innovative environment of an educational institution, organization of innovative educational environment in higher education institutions, theory and technology of environmental approach in education, requirements for educational environment of modern higher education institutions)
12. Concept of "methodical work" of a teacher (essence, types - educational and methodological, scientific and methodological)
13. Concept of "Individual methodological work" of a teacher (essence, its organization based on the use of interactive methods and forms of interaction)
14. Concept of "professional skill" of a teacher (essence and its diagnostics, identification of the level of formation of pedagogical skills)
15. Concept of "pedagogical goal-setting" (essence, design of objectives of a lesson on a competence basis)
16. Lesson as a pedagogical system (types, technology of preparation and implementation)
17. Concept of "pedagogical technology" (historical analysis of formation, essential characteristics of modern interpretations of the concept of pedagogical technology, classification)
18. Components of pedagogical technology (conceptual, substantive, procedural, diagnostic)
19. Technologization of educational activities (development (adaptation), testing and implementation of pedagogical technologies in the educational process)
20. Innovative teaching technologies. Modern technologies for monitoring and evaluating the results of students' educational activities (types of certification; multi-level pedagogical tests, expert assessment method, portfolio, active assessment, etc.).
21. Innovative technologies for activating and intensifying educational activities (developmental learning technologies, student-centered learning, problem-based learning, case technology, project-based learning, etc.)
22. Modular learning technology (the concept of “module” and its structure, drawing up a modular program of an academic discipline, systems for assessing learning outcomes)
23. Technologies for developing the creative potential of students (technologies of heuristic learning, pedagogical workshops, developing students' critical thinking)
24. Features of the technologization of the educational process in higher education institutions (designing an educational work system in a higher education institution, interactive forms and methods of education, technologies for educating student youth)
25. Active teaching methods (essence, role in organizing students' educational and cognitive activities, comparison with traditional teaching methods)
26. Interactive teaching methods (classification, use in the learning process)

27. Science and technology park (history of the issue, formation of the belarusian model development of technology parks, "Polytechnic", prospects for the development of innovative infrastructure of the uvo)