
АННОТАЦИИ

Abstracts

System Analysis of the Production of Carbon Nanofibrous Materials by Gas-Phase Chemical Deposition

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Key words and phrases: information system; catalyst; nanofibrous materials; technological system; control.

Abstract: The purpose of the paper was to improve the efficiency of managing the technological system for the production of carbon nanofiber materials. To achieve the goal, its system analysis was carried out. As a result of the decomposition, the main modules of the production system and the links between them were established, the possibility of implementing a control that facilitates its prompt transition to the production of nanostructures with pre-required parameters using an information system was assessed. Thanks to the information obtained and a new approach based on the hypothesis of the possibility of controlling the parameters of synthesized nanostructures at the stage of catalyst treatment by physical influence, a decision support system was created for the production of a catalyst that provides the synthesis of carbon nanofibrous materials with parameters that are closest to the required ones.

Application of a Probabilistic Robust Randomized Algorithm in a Network of Electric Generators

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Key words and phrases: probabilistic randomized algorithm; robust control; sustainability of the power grid.

Abstract: Due to the complexity of the working environment, the power grid is easily affected by various factors. The use of advanced management methods to improve the stability of the network is a practical challenge that needs to be addressed in the development of the electric power network. The objective of this study is to solve the problem of managing a network of electric generators, taking into account uncertain parameters and disturbances in the network. The research hypothesis is as follows: the electric power network is modeled by a network of electric generators, described by systems of differential equations of the third order. In this paper, the following method is used: a probabilistic robust control algorithm successfully applied to an electric power network to solve a robust control problem for this network, which can take into account the dynamic and static characteristics of the system. Result: in comparison with the linear optimal control law, the probabilistic robust law can more effectively suppress the adverse effects of interference on the system output, as well as increase its reliability.

Types of Software Architecture

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Key words and phrases: software architecture; network architecture; functional subsystems; software architecture structure.

Abstract: In recent years, the world has become increasingly dependent on software. The application must be highly accessible, provide the necessary functionality. These characteristics are determined to some extent by the software architecture. Software architecture is a description of a top-level system, an application structure, interacting modules and common program components, a set of structural elements and interfaces for their integration. It is a structure containing certain elements and their external properties, as well as the relationships between them. It includes all important design decisions. This provides a set of properties necessary for successful operation; it is the structure of the organization and the related activities of the system as a whole.

Artificial Intelligence in Education

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Key words and phrases: machine learning; creative writing; computers; text generation; artificial intelligence; automatic writing; literary creativity.

Abstract: The article explores the use of artificial intelligence in the educational field; the authors analyze examples of its use and evaluate their effectiveness, as well as discuss the ethical aspects of this topic. The use of artificial intelligence can significantly improve the quality of education, but it is necessary to take into account ethical aspects and prepare to adapt to new technologies in communities.

JSON Web Infrastructure Token. Implementation of the Main Types of Attacks

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Key words and phrases: token; JWT; user; key.

Abstract: The article discusses the security issues of authorization based on JSON Web token. The study used general scientific research methods. Also, the organization of authentication based on JWT and the organization of storing tokens is considered. At the same time, emphasis is placed on the ability to intercept traffic, which increases the risk of data loss and gaining access to intruders. As additional means of protection, the authors provide for the organization of a secure encrypted channel of the server infrastructure in order to exclude the possibility of intercepting open (unencrypted) traffic, as well as session tracking.

Using the Particle Swarm Method in Solving Optimization Problems

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Key words and phrases: machine learning; optimization method; swarm intelligence; Python.

Abstract: Optimization is a typical type of mathematical problems. Third-party software (software) that automates the solution of this type of problem has certain limitations. Therefore, a situation may arise when the search for the desired system will take a long time. The way out is to develop your own software environment. The purpose of the article was to test the hypothesis that the application created by the authors is able to find optimal solutions. To verify the above statement, the following tasks were solved: an algorithm was developed, a program code was written, and software was tested. This was done through the application of artificial intelligence techniques (particle swarm), benchmarking and high-level programming. The obtained results unambiguously indicate that the created software allows solving optimization problems quite effectively.

Analysis of Statistical Characteristics of the Process of Automated Testing of Mobile Applications Using APCS

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Key words and phrases: automated testing; mobile applications; model-based testing; GUI testing; API testing; performance testing; security testing; statistical characteristics; testing tools.

Abstract: The study is devoted to the use of an automated process control system (APCS) at the stage of automated testing of mobile applications. The main goal of the study is to determine the benefits of using automated process control systems in mobile application testing. The paper describes modern methods and tools for test automation, as well as analyzes the statistical characteristics of the testing process. As a result of the experiment, the advantages of using automated process control systems were revealed, such as increasing the reliability of testing, optimizing time and resources, and improving the quality of mobile applications. The results of the study can be useful for software developers and testers, as well as for everyone involved in automated testing of mobile applications.

Trigonometric Surfaces

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Key words and phrases: trigonometric functions; trigonometric surfaces; descriptive geometry; Mathematica program.

Abstract: In the article under consideration, surfaces defined by trigonometric equations are studied. The purpose of the study is to classify a certain subset of trigonometric surfaces, namely: only such surfaces are considered, in the equation of which there are trigonometric functions \sin , \tan , \sec . The limitations associated with the equations are that only first-order equations derived from the equation of the plane by changing the variables to a trigonometric function of one variable are considered. A systematization of trigonometric surfaces is proposed on the basis of the same type or heterogeneity of trigonometric functions included in the surface equation. Research objectives: to consider in detail a certain part of the surfaces within the framework of the accepted classification. Research methods: the use of analytical geometry. It is assumed that trigonometric surfaces are unbounded, and in some cases multiply connected. It is concluded that graphs of trigonometric surfaces have been obtained, which make it possible to judge the correctness of the accepted hypothesis.

Research and Development of a Multi-Level Caching Model in the Magento eCommerce Platform

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Key words and phrases: Magento; eCommerce; caching; distributed caching; non-distributed caching; MEMCACHED; PHP REDIS; APCU.

Abstract: The task of improving the performance and response speed of eCommerce systems is one of the key ones for increasing the attractiveness of an online store, and hence increasing conversion. Within the Magento eCommerce platform, there are several areas of research, one of which is caching. The aim of the study is to develop a model for multi-level caching. To achieve this goal, the following tasks are solved: the study of cache types in the Magento platform, the study of existing caching methods and the possibilities for their combined use. Based on the research, two main approaches to organizing caching based on distributed and non-distributed cache systems are distinguished. The results of the study made it possible to develop a multi-level caching model implemented as a Magento module, to reduce the number of external requests to distributed caching systems, which made it possible to reduce the response time to a request.

Mechanisms for Managing Green Building Projects

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Key words and phrases: ecology; construction; management; project; risk.

Abstract: Global concerns about climate change and the desire for an environmentally friendly lifestyle have changed the construction industry. This trend is characterized by the rise of green building projects and the conscious decisions made by managers to come up with environmentally friendly initiatives. The purpose of the article is to consider the mechanisms for managing green building projects. The objectives are to explore the essence of the mechanism for managing “green” construction projects; identify the problems of choosing adequate methods and means of managing these projects; give a practical example of an approach to managing environmental projects in construction. Hypothesis: the use of flexible and adequate tools for managing green building projects will provide the expected results and effect in the economic and environmental dimension. It is concluded that using the concept of project management, the constituent elements and stages of the mechanism for managing green building projects are formalized.

Air Binder Based on Clay Gypsum

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Key words and phrases: clay gypsum; mathematical planning; burning; grinding; technological processing.

Abstract: Clay gypsum is a natural formation of fine-grained crystalline gypsum, evenly mixed with clay or loam. The amount of gypsum varies from 50 to 95 %. The aim of the research was to optimize the production parameters of clay-gypsum binder. The research was carried out on the basis of mathematical planning, statistical and analytical processing of the results of the experiment. As a result of the research, the technological parameters for obtaining a clay-gypsum binder, the modes of its

heat treatment (roasting) were optimized, and the influence of technologies on the properties of a clay-gypsum binder, which can be considered as an analogue of a binder obtained from natural gypsum raw materials, was studied.

Construction of Industrial Buildings Using Metal Structures

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Key words and phrases: reinforced concrete structures; buildings and constructions; quality; Constructive decisions; metal constructions; industrial buildings; construction; exploitation; efficiency.

Abstract: Structural solutions for industrial buildings are very diverse, but recently, metal structures have become more actively used in the construction of industrial buildings, since they have a number of advantages over other building solutions. The use of metal structures is more effective in large-span buildings, where it is especially important to reduce the dead weight of the structure. At present, new high-strength steels with high ductility and machinability, with high yield strength, strength and endurance have been created. The purpose of the article is to explore the features of the construction of industrial buildings using metal structures. To achieve this goal, the article considers the requirements for the installation of metal structures in the construction of industrial buildings, types of fastenings and connections of metal structures. The hypothesis of the study is that metal structures are effective in the construction industry, since their light weight leads to lower transportation and installation costs; equipment with a lower carrying capacity and equipment with less power is required than for reinforced concrete structures. All this leads to a certain economic effect. As a result of the study, it was concluded that the installation of industrial buildings from metal structures is more acceptable than reinforced concrete structures, although certain difficulties also exist. Methods of comparison and analysis were used.

Features of the Health Status of Workers in the Oil and Gas Industry

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Key words and phrases: risk assessment; oil and gas industry; occupational safety and health; working conditions.

Abstract: The article assessed the risk of occupational diseases in oil and gas industry workers. The aim of the work was to study the classification of types of received occupational diseases. Based on medical examinations of oil and gas industry workers, it was determined that diseases of the musculoskeletal system, cardiovascular diseases, diseases of the nervous system, thyroid gland and various specific diseases occupy the leading place.

Promotion of Physical Education and Sports through Didactic Material in the Context of Work on the Development of Students' Speech

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Key words and phrases: search and creative tasks; methods of work on speech development; coherent speech; speech development; physical culture and sports.

Abstract: The purpose of this article is to consider the possibilities of didactic material in the context of working on the development of students' communicative skills to promote a healthy lifestyle through the formation of interest in physical culture and sports. The problem of the study is due to the insufficient development of the issue: there is no wide range of means and methods for developing the speech of students based on referring to sports texts. In search of a solution to this problem, the following tasks were solved: an analysis of school textbooks in the Russian language was carried out to identify the didactic component aimed at promoting physical culture and sports, and methods of working on oral and written forms of speech through the use of creative techniques were proposed. The hypothesis of the study is based on the assumption that correctly and systematically organized work on speech development based on the conscious attitude of students to the content side of the didactic material will contribute not only to the development of coherent speech among students, but also to the promotion of a healthy lifestyle through sports texts. When working on the article, the authors used the method of analysis and the method of generalization. The practical significance of the article lies in the development of predominantly search and creative methods of work in the aspect of the development of coherent speech of students, which are based on sports texts.

To the Question of the Formation of Patriotic Education of Graduates of Pedagogical Universities

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Key words and phrases: graduates; pedagogical university; patriotic education; formation; readiness of the teacher.

Abstract: The purpose of the article is to reveal the conditions for the formation of patriotic education of graduates of a pedagogical university. The following tasks have been set: revealing the relevance of the problem under consideration; clarification of the concept of patriotic education; specifying the conditions for the formation of patriotic education of graduates of a pedagogical university. The hypothesis of the research is based on the assumption that the formation of patriotic education of graduates of a pedagogical university will be effective in developing their love for the Motherland, responsibility for its fate, the development of a general and legal culture, legal awareness, legal education, respect for the customs and traditions of their own and other ethnic groups. Methods used with the article are analysis, synthesis, concretization, comparison, and generalization. In the paper, the author comes to the conclusion that the formation of patriotic education among graduates of a pedagogical university is an important condition for their professionalism, improvement of moral and legal culture, self-actualization.

The Theme of Physical Education and Sports in Mathematical Problems Implemented in the Computer Dynamic Environment "Live Mathematics"

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Key words and phrases: physical education; sports; spatial imagination; geometric problems; computer dynamic environment "Live Mathematics".

Abstract: The purpose of the study is the development of text tasks aimed at the development of spatial thinking, the content of which reflects the theme of physical culture and sports. The research tasks are to describe the relevance of the development of author's mathematical problems that reflect the theme of physical education and sports, to develop author's problems in mathematics in the computer dynamic environment "Live Mathematics", to present a step-by-step illustrated solution.

Methodological Bases for the Use of a Professionally Oriented Text in a Foreign Language in Teaching Students of Economics

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Key words and phrases: foreign language; monologue; non-linguistic university; professionally oriented text.

Abstract: The article deals with the selection and application of professionally oriented foreign texts and a set of exercises for them to develop the skills of oral monologue speech of economics students. The research hypothesis is as follows: teaching foreign-language oral monologue speech to economics students will be more effective if it includes reading professionally-oriented foreign-language texts and a set of exercises for them. Research methods are theoretical analysis of scientific literature and pedagogical experience on the topic of research, pedagogical experiment, statistical processing of results and analysis of the data obtained. The results of the pedagogical experiment prove the prospects of using professionally oriented texts in a foreign language to develop the skills of monologue foreign language speech among students of an economic profile.

Using Children's Toys in Physics Lessons

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Key words and phrases: physics; methods of teaching physics; children's toys; elastic force.

Abstract: The purpose of our study is to draw attention to the need and relevance of using children's toys in the process of teaching physics. The following tasks have been set: to prove the need to use children's toys in the study of physics at school; give an example of a fragment of a physics lesson that uses children's toys. The following hypothesis has been put forward: if children's toys are used in the process of teaching physics, then students will not only increase their cognitive interest in the subject, but will also understand the significance of the material being studied in practice, in real situations. In the article, we have given only one fragment of a physics lesson in grade 7, in which it is advisable to use a children's ball to demonstrate the elastic force before studying new material. As a result of such a study of physics, students not only begin to be interested in the subject, but show independence in the selection of children's toys, with which one can demonstrate the feasibility of the laws of physics.

Career Guidance Activities of a Pedagogical University in Modern Conditions

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Key words and phrases: propaganda team; master class; pedagogical professional activity; teaching class; social networks; forms of career guidance work.

Abstract: The purpose of the article is to consider effective forms of career guidance in a pedagogical university that meet modern challenges and contribute to improving the image of the teaching profession. The problem of the study is due to the need to attract applicants with high motivation and high-quality subject preparation to a pedagogical university. The objectives of the study are to identify the risks of the admissions campaign by means of a survey; to summarize the experience of career guidance at the Lesosibirsk Pedagogical Institute, a branch of Siberian Federal University; present modern effective forms of career guidance. The hypothesis is as follows: systematic career guidance contributes to the development of motivational and value readiness of schoolchildren to

choose the profession of a teacher. Methods: analysis, generalization, questioning, method of statistical data processing. The practical significance of the article: the proposed experience in the field of career guidance can be used in other educational institutions.

Formation of Anti-Corruption Attitudes and Beliefs among Employees of the Penitentiary System

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Key words and phrases: anti-corruption attitudes and beliefs; employees of the penitentiary system; anti-corruption worldview; worldview anti-corruption positions.

Abstract: The purpose of this article is to update the problem of the formation of anti-corruption beliefs and attitudes among employees of the penitentiary system. The solution of the problem is carried out on the basis of general scientific methods of analysis. The article provides the definition and structure of anti-corruption beliefs and attitudes, provides methods for their formation, depending on the severity of the rational and emotional components of anti-corruption attitudes.

Features of Education and Protection of the Rights of Minors Taking into Account Changes in Administrative Legislation

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Key words and phrases: legitimate interests of minors; protection of parental rights; interests of the child; guardianship and guardianship; threat to the health of the child; judicial protection of minors; conditions for raising a child.

Abstract: The protection of the rights and interests of children includes the forms and methods established by law for the restoration of violated rights of the child, as well as the adoption of measures to prevent such violations. From the point of view of the legislator, the protection of the rights of minors is a multifaceted and complete protection of rights through legal norms found in the regulations of almost all branches of Russian law. Parents, state bodies and laws of the Russian Federation are obliged to protect not only those rights of children that are provided for by family law, in particular Ch. 11 of the Family Code of the Russian Federation, but also civil, administrative and other rights.

Summer Intensive Popular Science School “Logos” as a Form of Career Guidance at a Pedagogical University

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Key words and phrases: intensive school; research activities of students; subject area “Philology”; professional self-determination; forms of career guidance work.

Abstract: The purpose of the article is to consider such a productive form of career guidance in a pedagogical university as the Summer Intensive Popular Science School “Logos”. This format creates conditions for the development and formation of motivation for scientific activity in the field of linguistics and literary criticism, taking into account the personal interests of the participants; promotes professional self-determination of both schoolchildren and students. The problem of

the study is due to the need to improve the image of the teacher, in connection with this, there is a need to develop new forms of career guidance in a pedagogical university. In search of a solution to the identified problem, the following tasks were solved: the experience of career guidance work in the LPI, a branch of the Siberian Federal University, was analyzed and summarized; the program of the Summer Intensive Popular Science School “Logos” was developed and the content of the events was determined. The hypothesis of the study is based on the assumption that the developed format of the event contributes to the development of motivational and value readiness of schoolchildren to choose a profession and educational and professional route, and contributes to the formation of students’ practical readiness for future pedagogical activity. The authors used the method of analysis and the method of generalization. The practical significance of the article lies in the fact that the proposed experience in the field of career guidance can be used in other educational institutions.

Features of the Parental Approach in the Upbringing of Modern Children

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Key words and phrases: family; family upbringing; upbringing style; cooperation with an educational institution; traditions.

Abstract: The article is devoted to the topical problem of today. Issues of family education, cooperation of educational institutions with parents (legal representatives), forms, approaches of working with families, attracting their attention and increasing the role of parenthood in the upbringing and development of children always attract the attention of many researchers. The effectiveness and efficiency of the activities of an educational institution and raising the status of the family institution depend on the fruitful and competent cooperation between parents and the school. Understanding the importance of the issue, the authors in their work studied the theoretical aspects of education and tradition. In order to identify the features of the parental approach in the upbringing of modern children, a survey was conducted among parents. The analysis of which is presented in detail in the content of the article.

Optimization of Teaching Methods for Understanding an Unfamiliar Authentic Text as a Way to Intensify the Educational Process in the Field of Foreign Languages in Non-Linguistic Universities

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Key words and phrases: methodology optimization; intensification of the educational process; unfamiliar authentic text.

Abstract: The purpose of this article is to study the topical issues of optimizing the modern methods of teaching the understanding of an unfamiliar authentic text by students of non-linguistic universities. To achieve this goal, it is necessary to complete the following tasks. Firstly, it is necessary to consider the concept of “intensification of the learning process”. Secondly, it is necessary to study the possibilities of optimizing the methods of teaching the understanding of texts in a foreign language. Thirdly, it is necessary to propose some methods of teaching the understanding of authentic texts. In accordance with the purpose and objectives of the study, the following research methods were used: the method of theoretical analysis of pedagogical and linguodidactic literature, other theoretical materials on the research topic, the method of comparative analysis, and a survey of students. As a result of the study, it was hypothetically established that the use of this technique will improve the quality of education of non-philologists.

Comparative Evaluation of the Main Parameters of Holding Regional and all-Russian Competitions in the Republic of Karelia

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Key words and phrases: coach-teacher; “Lokobasket”; Children’s Basketball League “NORTH”; competitions; basketball; young basketball players.

Abstract: In this paper, the quality of the organization of various basketball competitions among schoolchildren that have been held in the Republic of Karelia is determined and compared. The purpose of the article is to determine the quality of competitions held in the Republic of Karelia in the current century among children and adolescents, as well as their significance for athletes and coaches. The main objective of this study is to conduct a comparative analysis and determine the best basketball sporting event of those that have been and are being held from 2000 to the present. The research methods are theoretical analysis and generalization of scientific and methodological literature, study of archival data, communication with coaches-teachers and experienced players. The result of the study is as follows: the best and highest quality basketball event that was held among school-age children in the current century was determined, taking into account the opinions of coaches, teachers and tournament organizers.

Pedagogical Conditions for the Formation of Bachelors’ Readiness for Professional Activities in the Field of Technosphere Safety

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Key words and phrases: educational process; technosphere safety; bachelor; professional activity; pedagogical conditions.

Abstract: The purpose of the article is to substantiate the role of pedagogical conditions in shaping the readiness of bachelors for professional activities in the field of technosphere safety. The objectives of the study are: to analyze the basic concepts; determine the pedagogical conditions that contribute to the implementation of the model of formation of bachelors’ readiness for professional activities in the field of technosphere safety; substantiate the proposed pedagogical conditions and their role in shaping the readiness of bachelors for professional activities in the field of technosphere safety. The hypothesis of the study is based on the fact that the proposed pedagogical conditions will contribute to the effective formation of the readiness of bachelors in the field of technosphere safety for future professional activities. Research methods: theoretical - analysis of literary sources; empirical – analysis, comparison, generalization. Results of the study: the pedagogical conditions aimed at the formation of the readiness of bachelors in the field of technosphere safety for professional activities were determined and substantiated.

The Content of Military-Applied Tests of the Soviet GTO Complex (Pre-War Period)

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Key words and phrases: GTO complex; content of the GTO complex; history of the GTO complex; pre-war GTO complex.

Abstract: The introduction of the “Ready for Labor and Defense” complex in the USSR is due to the need on the part of the state for the comprehensive preparation of the population for the defense of the

Fatherland. The purpose of this article is a historical and logical analysis of the content and guidelines for performing military-applied tests of the GTO complex in accordance with the approved regulation on the "Ready for Labor and Defense" badge dated March 11, 1931. The methodological recommendations for performing such tests as : lifting a cartridge box on the shoulder and moving with it, swimming in clothes, swimming with a rifle over his shoulders, swimming with a grenade, a paramilitary campaign, advancing in a gas mask for 1 km. As part of the submission of the presented military-applied tests, a number of theoretical issues necessary for the successful completion of the complex standards were considered.

Problems of Preparing Teachers for the Development of the Basics of Engineering Thinking in Preschoolers

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Key words and phrases: preschool education; engineering thinking; professional competencies; continuous education; technogenic society.

Abstract: Modern technogenic society places high demands on the training of specialists in the field of technical sciences. If enough serious attention is paid to vocational technical education in order to improve it, then the problem of forming its foundations at the level of preschool education remains relevant and insufficiently studied. The purpose of this article is to identify the contradictions and problems of the readiness of future teachers to develop the foundations of engineering thinking in preschool children. The main research methods were the method of analytical review, analysis, comparison, and generalization. In the course of the study, the authors determine the following necessary principles for improving the formation of professional competencies of future teachers aimed at developing engineering thinking among preschoolers: the principle of interaction between artificial and natural intelligence in modern human-dimensional technical systems, the unity of the humanitarian and technical training of a modern engineer, the continuity of technical education, including preschool level.

Problems of Formation of Professional Competence of Teachers of Preschool Education in Digital Pedagogy

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Key words and phrases: preschool education; digital pedagogy; professional competencies; technogenic society.

Abstract: The modern society of digital technologies makes high demands on the training of teachers. Programs for improving the training of personnel for preschool education in the context of digital pedagogy are in demand. However, when developing them, a gap arises between the provisions of fundamental pedagogical theories and their implementation in the digital educational space. The purpose of this article is to identify the contradictions and problems of preparing preschool teachers to work in the context of digital pedagogy. The main research methods were the method of analytical review, analysis, comparison, and generalization. In the course of the study, the authors determine the following necessary principles for developing a training program for preschool education in the context of digital pedagogy: analysis of educational and methodological materials for their compliance with the scientific pedagogical level and adequate adaptation to the conditions of digital pedagogy, monitoring the quality of student training in terms of mastering professional competencies with taking into account the digitalization of pedagogical activity, monitoring the professional adaptation of young professionals in the context of digital pedagogy in preschool institutions.

Topical Issues of Philosophical Training of Modern Teachers

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Key words and phrases: philosophy; philosophical methodology; information society; pedagogy; philosophy of education.

Abstract: Modern philosophy courses in pedagogical universities are built according to a unified plan, as a rule, without taking into account the specifics of the direction. There are many reasons for this, but the main one is the inability to develop and teach a philosophy course for each specialty according to its own plan. This approach leads to the fact that the methodological level of scientific research is reduced, especially within the framework of university training. The main research methods were the method of analytical review, analysis, comparison, and generalization. In the course of the study, the authors substantiate the position that in modern educational programs it is necessary to associate courses in philosophy with the specialty and direction for which they are read. This requires the revision or introduction of topics devoted to the study of philosophical problems and the philosophical methodology of their study within the framework of the scientific areas in which the teacher is trained.

Optimization of the Means of Professional Training of Students – Future Engineers for the Implementation of the Bachelor’s Model “2 + 2” Using the Example of a General Physics Course

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Key words and phrases: higher education; professional training; engineering students; 2 + 2 model; individual educational technologies; general physics course.

Abstract: The purpose of the study was to optimize the means of professional training of students-future engineers studying according to the “2 + 2 with individual educational technologies” model. The task of the study was to analyze the features of the implementation of the “2 + 2” model using the example of a general physics course. The hypothesis that the experience of implementing the “2 + 2 with IOT” model will be effective for the professional training of future engineering students was tested by the following methods: analysis of psychological, pedagogical and scientific and methodological literature; analysis, textbooks, collections of problems, teaching aids for the course of general physics. As a result of the study, the advantages of the professional training model and the features of its implementation on the example of a general physics course were determined, which must be taken into account in further research.

Organizational and Methodological Support for the Implementation of the Model for the Formation of the Competence of Self-Analysis of the Pedagogical Activity of a Future Primary School Teacher

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Key words and phrases: competence of self-analysis of pedagogical activity; primary school teacher; organizational and methodological support for the implementation of the model of formation of the competence of self-analysis of pedagogical activity of a future primary school teacher.

Abstract: The purpose of the study was to characterize the organizational and methodological support for the implementation of the model for the formation of the competence of self-analysis of the pedagogical activity of future primary school teachers who are educated at the university. The hypothesis

of the study was that the organizational and methodological support for the implementation of the model ensures the formation of components of the competence of introspection of pedagogical activity among university students. The following tasks have been set: to give an interpretation of the concept of “Organizational and methodological support”, to describe the principles of organizational and methodological support in the implementation of the model for the formation of the competence of self-analysis of the pedagogical activity of the future primary school teacher.

Substantive aspects of Training Employees of the Federal Penitentiary Service of Russia to Work with Convicts for Terrorism in Conditions of Cell Distribution

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Key words and phrases: staff training; aspects; group of convicts convicted of terrorism; ideologies of terrorism; cell distribution; social group effects.

Abstract: The purpose of the article is to reveal the content aspects of the preparation of employees of the Federal Penitentiary Service of Russia to work with those convicted of terrorism in the conditions of their cell distribution. The objectives of the article are to determine the problematic aspects of socio-psychological phenomena in groups of convicts, their patterns of functioning; identification of shortcomings in the training of employees to counteract the spread of the ideology of terrorism in the conditions of cell distribution of convicts. Using the methods of analysis of the available scientific literature and observation, as well as the materials of his research on the problematic issue under consideration, the author offers his substantive aspects of the training of employees.

The Structure of the Competitive Activity of Divers of Various Qualifications at a Distance of 200 Meters in Separate Fins

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Key words and phrases: fin swimming; special endurance; divers of various qualifications.

Abstract: The article provides material on the dynamics of the special endurance of divers of various qualifications. The goal is to identify the nature of the passage of the competitive distance of 200 meters by athletes of various qualifications. The hypothesis is the assumption that the identification of the nature of passing a competitive distance of 200 meters will allow us to suggest ways to increase the special endurance of divers of various qualifications. The research objectives are to determine the maximum swimming speed of divers of various qualifications; to study the qualification nature of overcoming the competitive distance of 200 meters in separate fins. The research methods are analysis of scientific and methodological literature, pedagogical testing, chronometry, and methods of mathematical statistics. It was found that the nature of overcoming 50-meter segments at a distance of 200 m in fins was revealed. The relationship between the maximum swimming speed and the average value of all segments is determined. It was revealed that with the increase in the sports qualification of athletes, the difference between the indicated indicators decreases.

Professional Readiness of a Teacher for Certification

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Key words and phrases: professional certification; teacher’s professional certification; teacher

certification; professional readiness; teacher's professional readiness; teacher's readiness for certification; teacher's competitiveness; professional standard.

Abstract: The purpose of the article is to consider the characteristics of a teacher's professional readiness for certification as an indicator of the level of a teacher's competitiveness. In this article, we consider the importance of the development of three components of a teacher's professional readiness – scientific-theoretical, activity practical, motivational-personal components. Strengthening and development of each of the considered components will help to increase the professional readiness of the teacher to carry out professional activities and pass certification.

**Demonstration Exam as a Form of Intermediate Certification in the Discipline
“BIM Information Modeling Technologies” According to the World Standard Skills
within the Future Project Skills**

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Key words and phrases: bachelors of the Institute of Civil Engineering and Architecture; demonstration exam; World Skills; Future project Skills; Skills passport; experts; BIM information modeling technologies.

Abstract: The purpose of the study is to analyze the results of the demonstration exam conducted at the Institute of Construction and Architecture of the Ural Federal University, and to identify the shortcomings of the student training methodology. Research hypothesis: adjusting the teaching methodology will improve the level of training and the results of intermediate certification in the form of a demonstration exam. The research methods are experiment, measurement, analysis. As a result of the study, based on the obtained expert assessments, an analysis of the results of the exam was made and conclusions were formulated for adjusting the methodology for preparing and organizing demonstration exams in the future.

**Psychological and Pedagogical Aspects of Conflict Management
in the Youth Environment**

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Key words and phrases: youth; management; conflict; conflict situation; modeling; youth environment; socio-psychological design.

Abstract: The purpose of the article is to consider the psychological and pedagogical aspects of conflict management in the youth environment in the context of turbulence in social and other processes. The main objectives of the study are: a detailed analysis of scientific ideas about the problems of conflicts among young people, the search for models of conflict management in the youth environment, socio-psychological design in the youth environment to minimize conflict situations among young people in our country. The result of the study was: the theoretical development of the problem of conflict management among young people, the consideration of the psychological and pedagogical aspects of conflict management in the youth environment in the context of the uncertainty of ongoing social processes.

Features of Introducing Learning Analytics into a Predictive Learning System

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Key words and phrases: educational analytics; educational data analysis; predictive system; computer technology; student success.

Abstract: The article presents the views of the authors and the results of the study regarding the features of the implementation of learning analytics in a predictive learning system at the stage of digital transformation. The digitalization of education expands the possibilities for the provision of educational services, but at the same time, the amount of data accumulated in the digital educational environment increases many times, for the operational processing of which it is necessary to use computer technologies. It is noted that in the context of digital transformation, the functions of managing the educational process are assigned to the learning management system, and as a tool that ensures the implementation of new principles and management approaches, it is proposed to use educational (educational) analytics, since during the accumulation and processing of data on educational activities, it is possible to take more objective decisions. In the course of the analysis, new opportunities are identified that are added by educational analytics to all participants in the educational process, and possible obstacles and opposition to its implementation in educational activities are identified.

Conceptual Foundations for the Formation of a Pedagogical Team in the Process of Masters' Training for Food Industry

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Key words and phrases: pedagogical teams, product magistracy, educational product, team selection, pedagogical situation, behavior strategy, organizational culture.

Abstract: The purpose of the article is to analyze the information field and reveal the theoretical and practical foundations for the formation of pedagogical teams for new schools. The objectives of the study are to reveal the essence of the concept of "product master's degree", to explore the basics of the formation of pedagogical teams, to characterize the components of creating a team of teachers for new schools. The research hypothesis is that the competent formation of pedagogical teams will increase the efficiency of the educational process. The research methods are analysis of theoretical and methodological literature on the problem. In conclusion, the concept of a team, the goals of collective design, the main components of the formation of a team of teachers are highlighted.

Forecasting the Development of Cognitive Interest of Cadets in the Digital Educational Environment

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Key words and phrases: forecasting; cognitive interest; digital educational environment; cadets; innovative technologies.

Abstract: The article analyzes the problem of predicting the formation of a sustainable cognitive interest in learning in the context of the specifics of the service and training of cadets. It is noted that the development of the cognitive interest of cadets is associated with the actions of the teacher and the conditions created in the course of his training. The pedagogical conditions of the process

of development of cognitive interest are considered. It is proposed to use the digital educational environment and innovative technologies as an environment for the development of cognitive interest.

Methods for Body Hardening

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Key words and phrases: hardening; baths; disease; sun; air; water; methods.

Abstract: The article sets the task to list the methods of body hardening, as well as to give recommendations on their correct application. The purpose of the article is to promote these healing methods in the prevention of colds. The value of the work lies in the consideration of methods as an integral system that gives a significant healing effect, subject to the recommendations and the systematic implementation of them. The paper prescribes the methodology for hardening the body, gives recommendations on the correct implementation and use of one or another method of healing. The hypothesis of the study is as follows: by means of the recommended health procedures, to maintain good health for as long as possible, to increase the level of working capacity. Thanks to the practical application of these methods of hardening, certain results have been achieved in the field of physical fitness of students. As a result of this, the indicators of their control standards and the level of physical development have increased.

To the Essence of the Concept of "Sports Socialization"

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Key words and phrases: socialization; sports socialization; sport; individual; personality; agents of socialization.

Abstract: This article is devoted to the problem of understanding the phenomenon of sports socialization. The purpose of this study is to reveal the concept of "sports socialization", the achievement of which requires the solution of the following tasks, namely: theoretical and comparative analysis of socio-philosophical concepts of understanding the role of sports in the formation of the individual, determining the features of the process of sports socialization, the author's formulation of the term "sports socialization". As a result of the study based on the methods of theoretical analysis of scientific literature, synthesis and generalization of the studied material, the authors identify the characteristic features of sports socialization and give the author's definition of the phenomenon under consideration.

The Practice of Applying Interactive Methods in the Study of the Course of Engineering Graphics

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Key words and phrases: interactive method; business game; graphics; training.

Abstract: The purpose of this article is to apply a business game to the study of the course "Engineering Graphics" during which conditions are created for the manifestation of personal qualities

of students, their individual characteristics, and the formation of value orientations and the development of professional activity. The main result of the article is the presentation of the scenario of an educational business game, including the substantiation of the relevance of its topic, a description of the main game stages and requirements for its results. The theoretical significance of the article is due to the fact that it deals with the use of interactive methods at the university, including an analysis of the authors' work on pedagogical activity. The practical significance of the article is confirmed by the fact that the business game described in it has found application in the educational process at the Department of Digital Design of the Sevastopol State University.