

ABSTRACT REVIEWS OF JOURNAL ARTICLES

I. PROBLEMS OF TEACHING METHODS OF MATHEMATICAL DISCIPLINES

MATHEMATICAL COMPETENCE AS AN IMPORTANT COMPONENT OF THE TRAINING OF FUTURE SPECIALISTS OF AGRARIAN PROFILE

Antonets Anatolii, Flehantov Leonid

The article investigates the notion of mathematical competence and related concepts in the context of preparing future professionals of the agricultural profile. Established that at this time there is no definitive definition of mathematical competence of graduates of agricultural universities, it is shown the insufficient elaboration of this theme, in particular, the absence of a list of mathematical competences of farmer-experts and the list of their components. Based on the identified inconsistencies, the authors aim of the study was defined: to form a notion of mathematical competence of the graduates of agricultural universities and its individual components; outline the range of mathematical competencies required of specialists of agrarian sphere of production, and the corresponding program learning outcomes. The study based on the methodology of the European Tuning project, under which competence is a dynamic combination of knowledge, understanding, skills and abilities that acquire applicants of higher education, but learning outcomes formulated by teachers. As a result, the concept of mathematical competence of graduates of agricultural universities, its structural elements and program learning outcomes that increase the level of mathematical competence of specialists of agrarian sphere of production are presented. Under the mathematical competence of the graduates of agricultural universities, means the ability to see and apply mathematics in the field of agricultural production, to understand the content and method of mathematical modelling, to build mathematical models of objects, phenomena and processes related to agricultural production technologies, to explore their by mathematical methods, to interpret the results. The structure of mathematical competence of graduates of agricultural universities defined as one that consists of the following elements: procedural competence, logical competence, technological competence, research competence, methodological competence. As the prospects of further scientific studies the authors believe the study of possible directions of acquisition of predetermined mathematical competences in the learning process of future specialists of agrarian profile.

Keywords: competence, mathematical competence, methods of teaching mathematics, agrarian experts.

THE USE OF ONLINE SERVICES, MATHEMATICAL PACKAGES MAPLE AND PROGRAMMING IN THE STUDY OF FOURIER SERIES

Botuzova Yulia

In modern higher education there is a tendency to reduce the number of teaching hours. Instead, the importance of students' independent work is growing up. ICT and innovative teaching technologies should form the basis of advanced methodological training to overcome the negative phenomena in the information society. ICT use will allow to intensify teaching and learning and research activities of students, improve their mathematical and training, to reveal creative potential and increase the role of independent and individual work. The article raised the problem of the feasibility of using new information technologies in teaching mathematical disciplines in higher education. The chapter «Series» in mathematical analysis is the difficult for mastering by students. Therefore, there were considered methodological features of the using information technology in the study of the topic «Fourier series». We've included examples of solving common tasks on schedule function in Fourier series. In the Internet we found available online services that work with the Fourier series. Next we were compared and analyzed the results that demonstrated the work of the online calculators to solve the same problems. The author analyzes the functionality of the use online calculators, mathematical package Maple and basics of programming in solving these problems. Indeed, the use of a computer allow an interest for students, promotes their information competence, increases the effectiveness of learning discipline and its volume. There are demonstrated benefits of the using online services and mathematical software if necessary perform cumbersome calculations, and compares the quality and speed of results. We also say about importance of the use of new information technologies in the study of all the main sections of mathematical analysis as a basis for raising mathematical and training students. The use of information technology in the study of mathematical disciplines should be systematic. So there is a need to demonstrate the possibility of using these products in all main sections of mathematical analysis. This means that we must use information technology in the studying of all sections of mathematical analysis. In addition, there is close acquaintance of students with the specified software which they then easily be able to use when writing term papers and degree projects.

Keywords: teaching methods, mathematical analysis, online service, mathematical package Maple, Fourier series.

*AN INTEGRATIVE APPROACH IN THE CONTENT FORMATION PROCESS OF FUTURE ENGINEERS
FUNDAMENTAL TRAINING IN MATHEMATICS***Kolomiets Alona**

The article is dedicated to the problem of the fundamental mathematical training formation of future engineers. The essence of the concepts of mathematical training, the fundamental mathematical training and an integrative approach is clarified. The problem of applying an integrative approach in the process of mathematical training of future engineers is investigated. The achievements of scientists in this field are summarized. It was found that the fundamental training in mathematics involves the understanding of future professionals to use widely the methods of the mathematical apparatus in various fields of engineering science, as well as to see the interrelationships between engineering models and the mathematical description of these models. An integrative approach in the process of the fundamental mathematical training formation was paid attention to. It was emphasized, in particular, that the integration process helps to accumulate and increase the information capacity of the scientific knowledge, which directly affects the formation of the mathematical training content of future engineers. The possibility of this thesis performing in the educational process is demonstrated on a given example. In particular, an engineering model of the voltage transmission and change between the transformers is used, an equation systems of the relationship between input and output variables are composed. With the given example of the composed systems of equations for input and output signals and by using these systems transformations the coefficients have been obtained, the structure of which is similar to the structure of the matrix elements obtained by multiplying matrices. The relationship between physical phenomena and their mathematical description is shown. The use of mathematical apparatus which can be applied to engineering problems was demonstrated. The following theoretical methods were used in the given investigation: axiomatic method, the method of generalization, analysis, synthesis and comparison. The introduction of an integrative approach in the educational process in technical universities, in particular in the study of the advanced mathematics chapters promotes deeper awareness of the math concepts essence by the students and understanding of their applications. It also helps to understand the causal relationships of the theoretical material, appearance and creating of specific theories. It was concluded that an integrative approach is revealed through a synthesis and interpenetration of elements of different branches of knowledge. It is also a formative and driving force for the fundamental mathematical training formation.

Keywords: Engineering education, integrative approach fundamentalization, mathematical training.

*SPECIFICS FORMATION OF CONTENTS MATHEMATICAL EDUCATION OF FUTURE MECHANICAL
ENGINEER***Murashkovska Vira**

The article devoted to the problem of forming the content of mathematics education that meets modern requirements for engineering education. It is noted that the problem is solved will contribute to students' professionalism and competence in a broad subject area, the ability to not only develop, but also create new technologies in a constantly updated information environment. In addition, the improvement of mathematics education will enable to solve professional problems arise, so as to be competitive in the labor market. The basic principles for teaching mathematical disciplines of Mechanical Engineers were identified. It was found that the successful resolution of the complex and multifaceted task of training future mechanical engineer, including mathematical sciences, depends on many factors. The process of finding ways to improve the professional competence of future mechanical engineer should guide the use of innovative methods, development and introduction of modern integration technology training. The study of mathematical disciplines thus becomes paramount, because it is formed scientific outlook of future mechanical engineers. An idea of the integration approach is one of the fundamental ideas of modern high school (integrated class, integrated modules, integrated courses) was grounded. Designing a common value-based hierarchy of education on the area of mathematical education of future mechanical engineers is the need to prioritize teaching mathematics mechanical engineers. In the content should be displayed inclusive new technologies used in professional activities. In connection with this problem becomes relevant research shaping the content of vocational education and in particular the content of mathematical education of future mechanical engineers, based on the formation of professional competence of students. The main influence on shaping the content of mathematics education in Engineering carries his future professional activity that should be included in the training. Therefore, the school educational process of high school advisable to implement integrated modules (courses) that can produce a system of knowledge, vision common to students of different disciplines of ideas, development of new, integrative method of solving problems. In the implementation of the integration process, establishing internal subject and interdisciplinary connections in the educational process is to attract students to experience professional and creative mathematical activity.

Keywords: content, integration, competence, mathematical education, module.

*THE ECONOMICAL AND STATISTICAL ANALYSIS OF HARDWARE OF INFORMATION IN PEDAGOGICAL
UNIVERSITIES OF UKRAINE (1991–2011)***Pasichnyk Natalia, Rizhniak Renat**

With the use of economic and statistical analysis, the paper determines the basic laws of hardware of information of the general population of pedagogical universities of Ukraine in the economic conditions that were

specific to our country during 1991–2011 years. The following tasks were resolved in the course of the study: conducted economic and statistical analysis of time series, describing the history of acquisition of computer equipment in pedagogical universities of Ukraine during 1991–2011 years; defined the basic regularities regarding the provision of computer hardware for educational informatization of Ukrainian universities in economic conditions during a specified historical period. The article sets out the conclusions regarding changes in the average provision of pedagogical universities with computer equipment for 100 students, regarding the average variation of such provision in different educational institutions during the said period and indicators of variations in individual universities, regarding the detection of presence of correlation between time series that characterizes the complete set of pedagogical university with computers.

Keywords: pedagogical universities, computer equipment, provision, time series variation, the pair correlation, concordance.

METHODICAL FEATURES OF STUDYING THE LIMIT THEOREMS OF PROBABILITY THEORY IN AGRICULTURAL UNIVERSITIES

Flehantov Leonid, Ovsiienko Yuliia

The article discusses the methodical features of justify the transition from the study of probability theory to mathematical statistics in the process of training of students of economic specialties of agricultural universities. Background research is justified objectively existing contradictions between the requirements for professional competence of graduates and their low level of mathematical training. The focus is on a combination of the principles of scientificity and availability, demonstration of an applied orientation, theoretical and practical significance of limit theorems of probability theory, their role in the training of future economists of agricultural production. In the article highlighted the following methodical features: the transition from the study of probability theory to mathematical statistics take place while studying limit theorems of probability theory, which are the basis of mathematical statistics, because they establish a connection between the theoretical and experimental characteristics of random variables; in the study of the topic appropriate to use the conditional division of limit theorems into two groups: the law of large numbers and the central limit theorem; must have students focusing on the practical meaning of the law of large numbers and the central limit theorem; necessary for the study are the following (in this order): Chebyshev inequality, Markov inequality, Chebyshev's theorem and its corollary, Bernoulli's theorem, Poisson's theorem; the most convenient and accessible form of the central limit theorem for the understanding of the students' of the economic areas of training is the theorem of Lyapunov. In the main part of the article there is the emphasis on demonstration of applied orientation, theoretical and practical significance of limit theorems of probability theory and their role in training future economists of agricultural production. It has a mathematical formulation of the basic elements of the law of large numbers, which are necessary for the development of the theme and adapted for training students of economic fields of training of agricultural universities. There are variants of proving theorems, formulations of their theoretical and practical significance and examples that demonstrate application of limit theorems of probability theory and their connections with disciplines of professional and practical directions.

Keywords: economic specialties, agricultural universities, teaching methodology, probability theory, mathematical statistics, limit theorems, law of big numbers.

II. THE PROBLEMS OF PHYSICS TEACHING METHODS

CLASSIFICATION OF PHYSICAL PROBLEMS OF EDUCATION IN THE CONTEXT OF COMPETENCE

Burhun Irina

The article deals with the classification of physical problems in the context of the competency approach to education, definition of their types, classes, species, subspecies, based on scientific criteria. Develop educational and cognitive competence can only be in the organization of independent teaching and learning of students, which in the context of education is competency in solving the consistency of teaching and cognitive problems, practice-oriented - training - teaching and research. These ideas are the basis for separation of the three types of physical problems, aimed at holistic development of educational and cognitive competence of students in teaching physics, practice-oriented, educational and scientific research. The practice-oriented physical problems - it is educational and cognitive task, which in its content as close to the natural human life, containing practice-oriented problem (professional, consumer), whose solution requires mastering new students subjectively necessary physical knowledge, ways actions, abilities, skills, or using already known. Considering that the practical problems faced by a person at work (occupational problems), at home (domestic tasks) singled out two classes of educational and practical tasks, practice-oriented professional tasks; practice-oriented household tasks. These classes are the following types: to create an object with given properties; for the development of technology (method) of solving a particular problem; to eliminate abnormalities parameters that describe the object; for storing or transporting the object without changing its properties; for transmission, processing, storage; on finding or assessment of physical quantities that describe the properties of the object in a particular state; the management process, the work of the technical facility; to operate the technical object according to its purpose and characteristics.

Keywords: classification, physical challenge, practice-oriented task, the task of training, teaching and research task.

*REALIZATSIYA THROUGH AN POLITEHNIZMU VIKORISTANNYA SUCHASNYJ ZASOBIV IN PROTSESI
NAVCHANNYA FIZIKI*

Vovkotrub Viktor

Now the question is relevant polytechnic education and training of secondary schools. Particularly significant value in teaching physics in school should use the principle of polytechnism to solve such important problems as the entry high school students adequate ideas about the future professional activity in terms of their educational environment chosen profession and their own possibilities of active development, forming competences included in the socially-based own experience. Accordingly needs improvement and development of the learning environment, ensuring the proper implementation of the employment and industrial training, career guidance, preprofile and profile graduate training in secondary schools in terms of primary and high school. School physics course according to its specificity should be saturated Polytechnic content that requires a modern technical equipment. Performance of students in physics lessons and extracurricular classes with elements of experimental tasks of applied nature can successfully implement the principle polytechnism. It is important that each student performed relevant tasks of applied nature with modern facilities. However, the state of the necessary equipment in schools is unsatisfactory. In the absence of complete sets of modern equipment should abandon the frontal organization of laboratory work, including a demo version. In such circumstances, tasks and application Polytechnic content is covered by work programs setting physical workshop. A material support to create, using both improvised devices and appliances and some contemporary examples of household and industrial appliances.

Keywords: Polytechnic education content, experimental problems in physics, homemade instruments, profile and applied focus, modern digital measuring devices, sensors, digital stopwatches.

*SOME ASPECTS OF EFFICIENCY AND ORGANIZATION OF LECTURES ON PHYSICS IN TECHNICAL
HIGHER EDUCATIONAL INSTITUTION*

Guryevskaya Olecsandra

In the article considered the subject-theoretical component. Found that it includes: fundamental phenomena and laws of physics, including those that form the basis of many general professional and special disciplines; understanding of the natural course of processes from the standpoint of mathematical modeling; understanding of the nature of physical laws and limits their use; understanding of the fundamental principles of physics, the prevailing level of systematic knowledge of students. The methods of improving the efficiency of the organization and lectures on physics course for students of technical schools. Taken into account that the lecture is a leading element of the whole cycle of didactic training and is a way to surround presentation of theoretical material that ensures the integrity and completeness of its perception by students, the source of systematic foundations of scientific knowledge in the discipline, reveals the state and prospects of development of the area of science and technology, focuses students on the most complex and nodal issues, encourages their active cognitive activity and promotes creative thinking. Consider advantages and disadvantages lecture forms of educational process, particularly physics. The expediency of use: problem lectures; lectures using Information Communication Technology, to achieve a high degree of visibility and imagery training material proposed electronic lecture notes, slides, text and graphic support, computer animation and mathematical modeling of the studied processes and phenomena, educational software tools, multimedia clips). We consider ergonomic design requirements for the electronic lecture notes.

Keywords: competentive approach, general physics course, the future engineer, problem lecture, lecture synopsis of electronic, information - communication technologies.

*THE LEADING ROLE PROBLEMS TO STUDY THE SECTION «ELECTRICAL PHENOMENA.
ELECTRIC CURRENT» BASIC SCHOOL PUPILS*

Donets Natalia, Donets Igor

The main goal of teaching physics in a secondary school is to develop personality of students through the formation of their physical knowledge, the proper style of thinking, ecological culture, development of experimental skills, creative abilities and tendency to creative thinking. In the primary school lays the foundations of physical world knowledge: students possess the basic physical concepts and laws, learn scientific terminology, basic methods of scientific cognition and algorithms for solving physical problems on the basis of which to develop experimental skills. The purpose of this article to consider the method of formation of skills of students to solve problems in physics the study section «Electrical phenomena. Electric current». Provide a list of some of the tasks in compliance with the requirements of differentiation of education with the section «Electrical phenomena. Electric current», which in our opinion will shape students' skills and problem-solving skills using mathematical operations that children learn in mathematics lessons.

Keywords: methods of teaching physics, elementary school, methods of forming ideas about electric current, solving problems, differentiated teaching physics.

ICT IN FORMATION METHODOLOGICAL COMPETENCE OF THE FUTURE TEACHERS OF PHYSICS

Yekumenkova Olha, Sadovyi Mykola

Competence approach makes the process of learning methods of teaching physics in higher educational institutions of a completely new direction. Therefore, in preparing future teachers of physics is important to form the methodical competence in students, such as the ability to effectively use ICT in their professional activity. In particular, these technologies make it possible to realize a new level of visibility principle. Formation of methodical competence of future physics teachers contribute to the harmonious development of cognitive abilities of the individual students. The article is the search for methods and ways of forming techniques use ICT tools practical implementation of the theoretical ideas of formation of methodical competence of future teachers of physics. In the article the methodical preparation functions: integrative principle, which combines all components of training a teacher of physics; modeling principles as the ability to design the educational model; predictive feature that places the methodological training system of continuous pedagogical education; Diagnostic capacity methodical preparation; innovative makings for innovation. Found that important in methodical preparation of teachers belonging methodical culture as personal formation through which a large number of defined guidelines are most effective. The authors investigated how you can use the program Qwizdom Oktopus in classroom work. Further research will involve the development of methodological principles of using this resource as part of distance learning students, the formation of scientific experimentation and competencies.

Keywords: competence approach, methodological competence, methods of teaching physics, information and communication technology.

UNITY PRINCIPLE ACTIVITIES AND PROCESS IN THE LEARNING

Kalenik Michael

The article is devoted to the analyzes the basic concepts of didactics as learning, learning, learning activities. It is proposed to consider education not as a transfer of knowledge and skills, as well as conversion experience, which is the original principle of constructing a model of the learning process. In the experience of students, we understand and result of interaction with the environment, and the very interactions. The result of this interaction is the subjective ideal objects, that knowledge – the holistic view of the individual events of the outside world and rational ways of working. We consider two main groups of transformations that the subjects during their interactions with ideal or real objects: a) conversion of ideal objects in the experience of mankind as real objects for students; b) conversion of physical objects into objects of subjective ideal students. The concepts «learning process» and «learning process». The necessity of consideration of training activities through the interaction of the learning process. The learning process is seen as a logical sequence of actions that make up the learning-activity. Education is seen as the imposition of a one-two structures: the structure of education and training structure process. Integrating traditional virtues, gradual, synthetic lessons on the structure of joint activities teachers and students structure imposed process of learning and formation of practical skills. Consideration learning process aimed at identifying the according sequence of interactions results, the content of these results, so you can not only based on these signs to judge the achievement of certain results, measure them, but also to plan the best course of training activities.

Keywords: learning, the process of learning, teaching process, activities, interaction, transformation, experience, ideal object, taxonomy.

RAISING STUDENTS' COGNITIVE ACTIVITY BY IMPLEMENTING PROJECT METHOD

Kiktev Alla

This article describes how to increase the cognitive activity of students using the method of projects directed at developing participants design and research of integrated and system knowledge. Using projects allows fully reveal the content of teaching and the production process to implement problem-developmental nature of the research and to increase student interest in general learning. The author illuminated the basic elements of design and implementation of research in the institution, disclosed the purpose, goals and objectives set for the project both to teachers and to students. One solution to problems of modern education is the educational projects, providing forming ability of both practical and scientific activities, outlines the project's ability to determine the purpose and plan of diverse ways to achieve it, the accumulation of knowledge to analyze and evaluate promising results. Indicated that design and research activity allows you to make training more intense due to the implementation capacity of each individual project participants, thereby, increasing the total collective awareness of students in the major aspects of the research subject. Implementation of design research is effective in cases where students are well prepared both in theory, is fully aware of the processes and phenomena that occur in the course of the study, and provided that virtual piece of research carried out in combination with real.

Keywords: design, research and project activities, educational process, billing system.

ABOUT TEACHING PHYSICS AND ASTRONOMY IN HUMANITARIAN CLASSES SENIOR PROFILE SCHOOL

Krasnobokiy Yuriy

In the article importance of mastering of humanitarian classes of senior school students is grounded naturally by scientific knowledges, in particular by the study of physics and astronomy. Specific moments, related to

organization of teaching educational process of these disciplines, are marked. The possible variants of introduction and study of physics and astronomy come into question in the humanitarian classes of senior type school. Humanization of teaching physics considered in two ways – as it is associated with the content of education, which should transfer emphasis on examples of applications of laws of physics in various sectors of the economy; and the process of study to students acquiring relevant knowledge. In the process of teaching physics students of the humanities classes should take into account the specific contingent of students of these classes in terms of providing a significant share of those practical skills that students will learn and bring it to the school as vital competencies for use in their future profession or at least at home. Humanization of teaching physics should be read in two ways: it should be associated both with learning content, which should transfer emphasis on striking examples of useful applications of laws of physics in various sectors of the economy and the process of study to students acquiring relevant competencies: basic (subject), philosophical nature (they can shape the study of almost all branches of physics, especially topics such as energy, work, power, electrical phenomena; nuclear energy, etc.), historical (during the process of fundamental discoveries, history of physical theories, explore biographies of physicists), polytechnics (diversity in applied physics applications), aesthetic (for example, during trips in nature to bind educational material section of optical astronomy: the color of the sky, colored optical phenomena in the atmosphere, remarkable figures of the constellations etc.), environmental (when considering the principles of modern teplovyh-, electricity and hydropower plants, nuclear power plants, internal combustion engines, jet propulsion and the development of the cosmos, etc.) and so on. Formation of complex knowledge makes it possible to carry out another very important function of the school - professional orientation of young people. Consequently, we believe that the study of physics and astronomy in humanitarian senior profile school classes should be mandatory, the study of these subjects may be monopredmetnym or in the form of integrated course. Prospects for research should aim at developing a system of motivations students humanities classes to increase their interest in mastering science knowledge.

Keywords: humanizing, physics, astronomy, teaching educational process, senior type school, concept of education, the goal of substantive competence.

METHODICAL ASPECTS OF CONTROL-EVALUATION COMPONENT REALIZATION IN STUDENTS' EDUCATIONAL AND COGNITIVE ACTIVITY IN MECHANICS LABORATORY COURSE

Kulyk Ludmila, Tkachenko Anna

The aim of our research is the search for ways to improve the diagnostics and control of knowledge and skills of students in Physics. Emphasis is laid on the control-evaluation component (as the unity of control-regulating and result evaluation) of students' educational and cognitive activity on the basis of generally acknowledged structural elements of education process. The necessity for creation of test didactic control system to realize control-evaluation component of students' learning activity for every course in general physics is demonstrated. Methodical aspects of its realization in the «Mechanics» laboratory practice course with the usage of test technology of students' knowledge control are analyzed. The sample of tasks for self-control and tests for introductory and end-of-course assessment control of students' knowledge for one of laboratory works in mechanics is provided.

Keywords: control-evaluation component, educational and cognitive activity, didactic control system, test technology of knowledge control, General Physics course.

SOME ASPECTS OF THE DEVELOPMENT OF LOGICAL THINKING OF THE SECONDARY SCHOOL STUDENTS

Makarenko Alexander, Makarenko Ekaterina, Matiash Ludmila

The article is devoted to the development of logical students' thinking through the system of exercises, which is based on logical relation of subordination. Recently, several studies have been done on the creation of system of exercises and tasks by I.A. Biryukov, V.S. Volodarsky, K.V. Dautova, H.A. Monahova, L. F. Obuhova, they identified didactic requirements of the problems or content of physics course at the secondary school, as a backbone factor and, at the same time, the development of exercise in a multicomponent task, as a backbone factor was not traced, and the logical relation was not considered. The principles of the optimization of teaching and educational process and activity approach is expressed in the idea of integration of didactic units and became a basis for the solution of methodical aspect of a problem. In the process of forming experiment clarified seat of integral formation method of reasoning by deduction of the general techniques of mental activity. It is installed feasibility forming method through exercises and determined the proportion of different types of exercises in the developed system. The impact of the developed method of theoretical basis causal explanation reflective performance features this method was determined. Statistical analysis of experimental data was conducted with following ways (by A.A. Kyveryalhom): in assessing the effectiveness of the developed method of forming initial skills of deductive explanation – way to assess the reliability of the difference between the coefficients of reliability tasks control and experimental groups (difference method); in determining the link between the formation and the ability to explain the performance of creative tasks to establish causation on the basis of molecular-kinetic theory and email; method of reliability based on an analysis of the correlation coefficient (linear correlation method by K. Pearson). So, the problem of students in Grade 8 items deductive method of reasoning in formal logic level in the explanation of natural phenomena on the

basis of physical theory can be solved with the help teachers' of adequate activity. This activity based on the principle of structuring educational material about the logical relationship of subordination.

Keywords: logical thinking, deductive reasoning method, a system of exercises, relationship of subordination definition, integration of didactic units.

METHODICAL FEATURES OF TRAINING OF PHYSICAL EDUCATIONAL MATERIAL FOR CADETS OF MARITIME HIGHER SCHOOL CONSIDERING SPECIFICS OF COGNITIVE PERCEPTION IN THE INFLUENCE OF FACTORS INFORMATION AND COMMUNICATIVE TECHNOLOGIES

Panina Olga

As the title implies the article describes the method of presenting educational information that is used by the author in the process of teaching physics in the maritime higher education, taking into account the specific changes in the mechanisms of cognitive processes of modern man, which occur under the influence of modern information and communication technologies. It is proposed the methods of using reference synopsis as way of increasing productivity of student's working with unknown material. Also in this article provides a brief description of current psychological research, which analyze problems of change of mechanisms of human cognitive processes as a result of the influence of modern information technologies. In addition it is an overview of the different training methods of modern Ukrainian teachers. In the process of teaching was observed that the method of providing large amounts of specialized information in the form of small blocks, which on one hand is a self-contained units, on the other – consistently out links of a logical chain allows you to use a linear properties of human memory so and consider attention deficit. The reference compendium aims to not only deliver information as description of the content of the information itself. Thus allows to realize one of the principles of study described an outstanding teacher KD Ushinsky «student in the study of school subject should go the shortest route and then it will be a good result». Methods of supporting lecture notes and started to be used in teaching practice in the last third of the twentieth century – just at a time when mankind has entered another phase in the development of science and technology and, consequently, information technology, when the volume of information flow.

Keywords: cognitive processes, hypertext, a digital immigrant, attention deficit disorder, net-thinking, blocks of information.

THE SYSTEMS APPROACH TO THE STUDY OF ATOMIC AND NUCLEAR PHYSICS IN THE COLLEGE OF EDUCATION

Sadovyi Mykola, Rudenko Eugene

The article deals with the problem using a systematic approach to modern physics lesson. The relevance of the study is the need of the organization and implementation of a systematic approach in the study of atomic and nuclear physics in teachers colleges. This approach significantly intensify their use of models and modeling, abstraction, idealization and analogy. Creating idealized objects, including interconversions of elementary particles that do not exist in objective reality, but with some prototypes of real-world help to reach a first approximation to the truth. This allows the study of atomic and nuclear physics to bring students to understand the modern scientific world. The article presents examples of experiments designed character model that allow visualized phenomena and processes of the microcosm. For example demonstration models of fusion stuff, experiments and Frank Hertz, external photoelectric effect. Demonstrations are made in dynamic mode, it is possible to control processes. The purpose of this article is the justification for the use of new information technologies and system approach in the study of nuclear processes high-energy physics. The article made the following conclusions. The methodology of the system approach that examines objects, phenomena and processes from the perspective of integrity, consistency, availability of connections, allows vychlenyty specific structural and functional components of the educational process in physics, discover their relationship and interdependence and ensure that the process of designing a whole, integrated, open, hierarchical system. As a result, the application of a systematic approach, got clearly structured, systematic material on atomic and nuclear physics reinforced system of teaching methods that cognitive activity of students, such as methods of comparison and comparison of concepts, phenomena and laws, which have the property of similarity, the use of analogies and models.

Keywords: systemic approach, new information technology, simulation experiments.

RESEARCH COMPETENCE BACHELOR OF COMPUTER ENGINEERING IN TEACHING PHYSICS

Sorokopud Mariya

On the basis of state standards and scientific publications, select the components (motivational and personal, intellectual and constructive, creative, activity-operational) and levels of formation of research competences bachelor of computer engineering in teaching physics. The purpose of the article is to allocate the components and levels of research competencies Bachelor of Computer Engineering in teaching physics. The author proposed structure of the system of competences in education and basic competences Bachelor of Computer Engineering. The article presents research competence levels of Bachelor of Computer Engineering. Established that the development of research competence of students in the training focused on the implementation of their research and personal potential, formation of readiness for active creative profession. The

research competence is not only a product of learning, but also the result of self-development of the student, his personal growth. The overall aim of forming a system of research competence of future specialist - create the ability to solve different types of professional research tasks. Further studies need to research ways of creating competencies bachelor of computer engineering by means of computer modeling in physics.

Keywords: competence, research competence, bachelor of computer engineering, teaching physics.

EXPERIMENTAL STUDY METHODS EFFECTIVENESS OF RESOURCE APPROACH

Sukhovyrskaya Ludmila

An important element of the educational process is to check the level of student achievements in the form of internal resources, motivational, cognitive, value-orientation, operational and reflexive resource. The aim of this work is presentation, analysis and evaluation of studies of the effectiveness of the proposed methods of teaching physics based resource approach, using a resource center for physics in secondary schools. For experimental verification efficiency resource center conducted large-scale physics teaching experiment involving 400 students of urban and rural areas. Given the basic operations that make up the implementation of scientific and educational experiments, as well as their degree of difficulty according to the assessment criteria of student achievements (on four levels), it is expedient to provide basic levels of internal resources: the initial, sufficient, medium, high. Pedagogical studies lasted for 2010 – 2016 years and included the following stages: preparatory → experimental results → processing results. Analysis of experimental verification of the proposed methods of teaching physics using resource approach shows that our proposed method of forming internal resources is more efficient as compared to traditional. The widespread introduction of resource centers contributes to the formation of internal resources of high school students.

Keywords: pedagogical experiment, resource approach, internal resources, physics, secondary school.

POLYSUBJECT APPROACH IN THE STUDIES OF ATOMIC AND NUCLEAR PHYSICS IN CLOUD THE ORIENTED EDUCATIONAL ENVIRONMENT

Khomutenko Maksym

In the article the considered structure of pedagogical cooperations. It is described polysubject of pedagogical cooperation in modern informative space and advantages of polysubject cooperation are reflected in the process of studies of atomic and nuclear physics in cloud the oriented educational environment. The structure of the methodical departmental of atomic and nuclear physics teaching is worked out in cloud the oriented educational environment on principles of polysubject approach. Examples of organization of individually-group projects of sent to the study, research and opening of individual features of students are made from the theme of «Radiation and absorption of light by atoms. Atomic and molecular spectrums. The x-rayed radiation» of division is atomic and nuclear physics in cloud the oriented educational environment of Moodle.

Keywords: cloud is oriented educational environment, polysubject approach, polysubject cooperation, methodology of studies of atomic and nuclear physics, pedagogical cooperation.

III. PROBLEMS OF TEACHING METHODS TECHNOLOGICAL DISCIPLINES

PEDAGOGICAL CONDITIONS OF FUTURE HOME ECONOMICS AND INDUSTRIAL ARTS TEACHERS' TRAINING FOR PEDAGOGICAL INTERACTION

Androshchuk Irina

Pedagogical conditions of future home economics and industrial arts teachers' training for pedagogical interaction in professional activity have been defined and justified in the article. The absence of an integral approach to defining a notion of pedagogical condition has been emphasized. Main approaches to revealing the notion in psycho-pedagogical and methodical literature have been analyzed and generalized. It has been indicated that pedagogical conditions that ensure the efficiency of forming the readiness of future home economics and industrial arts teachers for pedagogical interaction are: the forming of students' positive motivation to pedagogical interaction; the implementation of the author's course in Pedagogical Interaction in Professional Activity; the use of trainings aimed at involving students in pedagogical interaction; the orientation of teacher placements to obtaining experience in pedagogical interaction. It has been highlighted that students' positive motivation is a driving force that encourages them to choose the constructive interaction based on cooperation and mutual understanding in professional activity. The need for implementing the discipline "Pedagogical Interaction in Professional Activity" to form and widen students' knowledge of pedagogical interaction, methods, techniques and mechanisms of its provision on a subject-subject basis as well as improving pedagogical interaction skills taking into account the peculiarities of the subjects of the educational process and the conditions based on the cooperation has been justified. The importance of the active involvement of students in different types of trainings to develop skills of the constructive cooperation and the forming of skills to work in groups and subgroups thus stipulating for the culture of interaction has been emphasized. The significance of a teacher placement as a form of involving students in interpersonal interaction under real conditions within a comprehensive school that actualizes

moral and ethical values to improve the relationships and stipulates for adjusting to a role behaviour and defining one's own pedagogical position has been revealed. It has been indicated that the efficiency of future home economics and industrial arts teachers' professional training is defined by the realization of selected pedagogical conditions as interrelated components of an integral system that complement each other.

Keywords: pedagogical conditions, pedagogical interaction, home economics and industrial arts teacher, motivation, training, teacher placement.

IT EDUCATIONAL ENVIRONMENT OF KIROVOHRAD STATE PEDAGOGICAL UNIVERSITY

Bolilyi Vasyl, Kopotiy Viktoriia

The paper reflects the results of the planning, modeling, and building of a student IT educational environment at Kirovohrad State Pedagogical University (KSPU).

The structure of the KSPU IT educational environment is formed in accordance with the needs of the educational process participants. E-courses are published at Moodle-KSPU and Wiki-KSPU sites. Cloud-KSPU and Wiki testing site are used as helping tools. Webinars-KSPU site is used for conducting webinars, web-conferences and on-line seminars. Scholarly papers of the University's instructors, educational resource materials as well as other resources are published and stored at the University's library site which has an e-catalog operating on the basis of the «Irbis» system and institutional repository. All e-learning resources can be accessed via the same system of the user authentication procedure which involves LDAP catalog.

Keywords: IT educational environment, IT in education, wiki-sites in education, e-courses, MOODLE, cloud technologies.

PSYCHOLOGICAL AND PEDAGOGICAL TECHNOLOGIES OF THE STUDYING OF FUTURE SPECIALISTS OF COMPUTER SYSTEMS IN THE PROCESS OF STUDYING TECHNICAL SUBJECTS

Bodnenko Tatyana

The article is devoted to use of psycho-pedagogical technologies of training of future specialists of computer systems in the process of studying technical subjects. Analyzed definition of «technology» and «educational technology» leading scientists and educators. Most researchers define «education technology» is considered in the psychological and pedagogical aspect, as a way of interaction of subjects of educational activities. The essence of the concept of psycho-pedagogical technologies of training. Highlighted concept of assimilation of social experience in basic pedagogical techniques. Researched, what is common in all definitions of leading teachers is the focus of learning technologies to increase the efficiency of the educational process, which guarantees the achievement of planned learning outcomes. Also, the necessity of use of modern pedagogical technologies of education in preparing future professionals computer systems. This is due to the fact that the students of this area must learn and practice using innovative technical tools in the modern workplace.

Keywords: psychological-pedagogical technologies of education, technical discipline, future professionals computer systems.

MONITORING OF THE QUALITY OF ELECTRONIC EDUCATIONAL RESOURCES

Voytovych Ihor, Serhiyenko Volodymyr, Bondarenko Serhiy

The author defines the notion of educational monitoring, educational services, electronic educational resources and basic directions of their implementation in educational institution. It is proved that the quality of resource support and educational environment in which the educational process requires separate monitoring research. There were offered regular monitoring activities concerning the availability and quality of electronic teaching methods of disciplines based on existing criteria. The authors created the preconditions for the formation of an integrated monitoring system of educational resources and suggested the inclusion to automated information system of rating teaching staff the results of monitoring the quality of electronic educational resources.

Keywords: education management, monitoring system, the quality, electronic educational resources

STRUCTURE OF PROFESSIONAL COMPETENCE OF THE TEACHER OF LABOR TRAINING OF COMPREHENSIVE SCHOOL

Dederko Dmitry

The article deals with the problem of determining the structure of professional competence of labor training secondary school teachers. Based on an activity campaign it is revealed structure of professional competence of the teacher of labor training. In the context of labor training teacher professional competence structure determined that the scientific-theoretical component of competence encompasses knowledge in the field of technological disciplines; Methodological component involves the skill level of competence in the field of the formation of the relevant knowledge, skills, attitudes and values of students; psychological component of competence involves knowledge of the motives, abilities, orientation of pupils; reflection of pedagogical activity. In spite of the fact that there was no commonly accepted determination of structure of professional competence of the teacher of labor training but only some aspects of the matter were considered by scientists and researchers, were considered constituting competence and pedagogical abilities through which the structure of competence of the teacher of labor training is revealed. Researching professional competence, its structural elements and classification signs

were determined. Analyzing scientific literature, it was allocated scientific approaches to judgment of problems of structuring professional pedagogical competence of a context of a research of development of professional competence of the teacher of labor training. It is established that positive influence on development of professional competence of the teacher can be reached, first of all, due to allocation of its components which improvement will allow to increase competence level in general. All approaches offered by researchers are analysed, the conclusion is drawn that the generalizing structure of professional competence of the teacher of labor training at a basis of activity approach is constituted by the following basic elements: special and pedagogical, social, personal and individual. In turn, the special and pedagogical element combines scientific-theoretical, methodical and psychological components. It is proved that development of professional competence of the teacher of labor training assumes accurate structuring competence of a pedagogical phenomenon.

Keywords: professional competence of the personality, teacher of comprehensive school, comprehensive school.

*METHOD OF MODELS «COMPRESSION» OF EDUCATIONAL INFORMATION ON LESSONS
SUSTAINABLE AND SUSTAINABLE DEVELOPMENT*

Mukosiyenko Olga

The article reviews a teaching method on composition of teaching information «compression» models: mind map and notes-metaplans when studying the course «Lessons of sustainable development» taking into account the age peculiarities of the pupils. The usability of notes-steps as hand-outs for making mind map and notes-metaplans is examined. The experiment on doing creative tasks by pupils of the eights form is described and results are presented. Consider the possibility of models of «compression» of educational information in the study of elective courses «School friends of the planet» and «My Happy Planet» younger students. A study conducted by the author while teaching «Information» in elementary school showed that students are happy to make memory cards, because most of them like to draw. It is through passion drawing younger pupils, according to the author, it is advisable to teach them to draw up a simple model of «compression» of educational information related to drawing, memory cards and notes, metaplany. In the framework of the subject «Lessons for Sustainable Development» for students in grades 1-2 created an optional course «School friends of the planet». Learning this course is carried out by manual «School friends Planet: Lessons for Sustainable Development», each topic which consists of several meetings. In turn, each meeting consist of tasks to be performed and actions, the implementation of which will lead to sustainable development. Every action has three points, «Subject», «Why do» and «how to act». According to the author, to visualize the action advisable to make memory cards or notes-metaplany. For the «Themes» appropriate use red color for an item, «Why do» – pink or orange, to paragraph «What to do» – blue or green, which, according to a study presented in Table 1, like most younger students.

Keywords: Sustainable Development lesson, teaching information «compression» model, mind map, notes-branches, notes-pictures, notes-metaplans, notes-steps.

*INVESTIGATION OF MECHANICAL PROPERTIES OF RARE-EARTH METALS NANOMATERIALS
DODECABORIDES*

Odintsov Valentin, Koren Elena

This article describes methods of obtaining nanomaterials dodecaborides of rare earth metals; describes the static and dynamic methods of investigation the following mechanical properties: Young's modulus, shear modulus, Poisson's ratio. The article shows the calculated values of the mechanical characteristics (known formulas by Frenkel, Koester, Frantsevich), as well as those stated values obtained experimentally (static and dynamic methods). The article analyzes the results obtained theoretically and experimentally, for mechanical characteristics. The theoretical values of the Young's modulus, shear modulus, Poisson's ratio were very close in magnitude with the experimental for dodecaborides of rare earth metals YB_{12} , TbB_{12} , DyB_{12} , HoB_{12} , ErB_{12} , TmB_{12} , YbB_{12} , LuB_{12} , ZrB_{12} . Young's modulus ≈ 2 in times less than that of pure boron i is not increased as expected theoretically in a row $MeB_4 \rightarrow MeB_6 \rightarrow MeB_{12}$. This fact may explain the features of the crystal lattice structure dodecaborides phases bond lengths B-B, B-Me, Me-Me, forces of interaction between the atoms in these phases.

Keywords: refractory compounds, the mechanical characteristics, the characteristic temperature, Young's modulus, shear modulus, Poisson's ratio.

THE SELECTION OF ENTRANTS FOR IT-PROFESSION IN UKRAINE: STATE AND PROBLEMS

Ponomarova Nataliia

IT-industry is the most dynamic segment in the world economy. At the same time every year is exacerbated the problem of staffing in the IT industry. Article is devoted to the selection features of entrants on IT-profession in Ukraine higher educational institutions. Based on materials of Ukraine State Statistics Service, Informative System «Konkurs», official site of the Education and Science Department of Ukraine, we have analyzed the statistical data of entrants on the IT-profession from 2012 to 2016 years. The analysis gave grounds for the following conclusions. Human resources for natural development of human potential in all economics sectors and, in particular in the IT-industry, almost exhausted. So the problem of staffing in the IT-industry

requires systematic work and purposeful collaboration of secondary school, higher education institutions and employers. Even though last five years the IT industry is in top-list on the number of application forms from entrants, analysis is show that growth in this number stopped. Entrant's interest to obtain IT-specialties in institutions of higher education in Ukraine does not increase. School graduates' surveys confirm that there is a problem of timely, an unambiguous and conscious choice of future profession even those graduates who are oriented to the IT-industry. School graduates are insufficiently informed of the IT-professionals' training in higher education institutions in our country. The average pass rate of entrants on IT-profession decreases even in the best Ukrainian universities. There is the downward trend in the quality of training entrants on the IT-professions. Education needs to improvement the system of entrants' selection criteria trough certificates of testing. Now entrants on IT-profession submit certificates of independent external evaluation in Mathematics, Physics and Foreign Language. By the experience of foreign countries and the opinion of leading scientists, the independent external evaluation in informatics may be the better instrument for the testing for school graduates in IT-competency. Training highly qualified specialists for the IT industry is an objective necessity of Ukrainian and world economy. There is needed for a new system of professional orientation of school graduates on the IT-profession for the resolve the issue of staffing the Ukraine IT-sector.

Keywords: IT-industry, Staffing, IT-education, IT-profession, professional orientation, selection of entrants, entrants' selection criteria.

FREEDOM PEDAGOGY IN THE CONTEXT OF INNOVATIVE TRANSFORMATIONS IN UNIVERSITIES EDUCATIONAL SPACE.

Rastrygina Alla, Stratan-Artyshkova Tetyana

The article is dedicated to defining of the innovative resource of professional training of a future pedagogue-musician, the essence of which is to create inside the University arts educational environment the space for free self-identification of a personality, based on such guiding principles of freedom pedagogy as the principle of self-worth of a personality and the principle of freedom. The support on these principles serves for targeting the educational process at providing such pedagogical conditions that ensure not only the development of creative potential, self-expression, self-actualization and self-realization of a student in various types of musical and pedagogic activities, but also promotes formation of the author's ability of a future pedagogue-musician as an effective basis for his/her professional and personality development and implementation of individual trajectory of professional self-realization. The creative personality is a creative person and from this point of creative and performing training of future teachers musician is the basis for the formation of his creativity and expression in different types of musical and educational activities. Composer-performer activity as a component of creative and performing training, provides orientation training process for systematic, gradual and consistent involvement of students to self-realization in their own work, providing its innovative content. Such activities are student-musician based not only on the ability to perceive, perform and interpret vocal-choral and instrumental works, but also be able to submit their own works, attach to the co-creation of other direct songwriting, performing activities in the pedagogical direction, as a result allows characterized future teacher-musician as a whole person, able to free expression and self-realization in professional activity.

Keywords: freedom pedagogy, innovative resource, musical and pedagogical education, arts educational space, composing and performing activities, author's ability.

THE STUDY OF MAN-MADE HAZARDS RELATED TO ACCIDENTS AT RADIATION HAZARDOUS OBJECTS

Tkachuk Andrij

This article is devoted to the study of man-made hazards related to accidents at radiation hazardous objects, when considering the topic «Man-made hazards and their consequences» and «Forecasting and planning environment protection measures in the areas of radiation, chemical and biological contamination» regulatory disciplines «Safety» and «Civil protection». It is shown that the most dangerous of all accidents at radiation hazardous objects are possible accidents at nuclear power plants as Ukraine and neighboring countries (Iran, Russia, Armenia, Romania, Bulgaria, the Czech Republic, Hungary, Sweden, Switzerland, Belgium, the Netherlands, China, India, Pakistan). When accidents at nuclear power plants can be damaged structures, production lines, fires, emissions into the environment of radioactive substances. Accident with complete destruction of the reactor can occur as a result of the disaster, the explosion of ammunition, large-scale terrorist attacks, the drop in air transport nuclear facilities and others. The accident at the plant could also be of rupture pipelines from coolant, damage to the reactor and sealed areas, failure of control systems and protection that may cause immediate loss of tightness of reactor designs, melting fuel rods and the release of radioactive steam into the environment, may be spreading radioactive fragments, fragments of fuel cell designs. Expand the causes and consequences of accidents at nuclear power plants with water-water reactors, in which water acts as coolant and moderator. Analyzed accident involving the release of radioactive substances, which occurred in March 2011 in one of the most powerful nuclear power plant in the world – Japanese nuclear power plant «Fukushima-1». The consequence of this accident was the pollution of more than 1000 square kilometers of territory and losses amounted to over 250 billion dollars. The Japanese managed to cool the reactors only 3 months after a giant tsunami that destroyed all the protection system of three nuclear power plants. The most serious threat for these

reactors are: 1) a complete power outage; 2) explosive hydrogen; 3) fire; 4) molten nuclear fuel. Described additional passive safety systems on modern generation nuclear reactors 3-3 + that prevent such scenarios (additional emergency water circulation system; system of hydrogen absorption in concrete dome membrane reactor; trap radioactive melt from the reactor core).

Keywords: man-made hazards, radiation hazardous objects, accidents at nuclear power plants.

PRINCIPLES OF SELECTION OF MATRIX MATERIALS FOR COMPOSITE MATERIALS

Tryfonova Olena

The article is devoted to the important problem of studying methods of manufacturing techniques of composite materials in various matrices. Reveals common technological methods of production of polymeric and metallic fibrous and layered composites – growing crystals filler matrix directly in the manufacturing process details. The use of composite materials provides a new qualitative leap in increasing the engine power, energy and transport systems, reducing the weight of vehicles and equipment. The proposed concrete examples of the use of composite materials in various fields of human life and are components of education materials to familiarize students with the latest technologies. On the whole material presented in the article content will improve the training of students and promote the formation of professional competence. In the physicochemical properties of components of composite materials and their properties still depend on the strength of the connection between them. If between matrix and reinforcement is the formation of solid solutions or chemical compounds that maximizes strength. When you use the zero-dimensional filler, it is advisable to use metal matrix. Figure metal-based enhanced distributed evenly dispersed particles, which have isotropic properties. In such materials a matrix treats all load and disperse the filler particles hinder the development of plastic deformation. Effective strengthening achieved at 5-10% content of filler. Reinforcing fillers serve particles of refractory oxides, nitrides, borides, carbides. Variance reinforced composite materials obtained by powder metallurgy or powder reinforcing particles injected in liquid molten metal or alloy. The use of composite materials provides a new qualitative leap in increasing the engine power, energy and transport systems, reducing the weight of vehicles and equipment. Composite materials with non-metallic matrix polymer karbovoloknisty that is used in shipbuilding and automotive (body racing cars, chassis, propellers) are made bearings, heating panels, sports equipment, parts of computers. Karbovoloknity high-modulus used for the manufacture of aviation equipment, equipment for chemical industry, X-ray equipment and others. Karbovoloknity carbon matrix substitute different types of graphite. They are used for thermal protection, brake discs aviation, chemical-resistant equipment. Borovoloknitiv products used in aviation and space technology (profiles, panels, rotor blades and compressor blades propellers, transmission shafts helicopters, etc.). Orhanovoloknity used as insulation and construction material in electrical radio industry, aviation technology, etc. The proposed higher material, in our view, improve the content of the training of students and promote the formation of professional competence. Prospects for further research related to further improvement of methodical system of training of future specialists with higher education.

Keywords: composites, fillers, technology, matrix methods of teaching.

COMPETENCE OF GENERAL CULTURE AS CONSTITUENT OF COMMUNICATIVE COMPETENCE OF FUTURE SPECIALISTS IN DOCUMENT: RESEARCH OF LEVEL

Tur Oksana

The article is sanctified to the analysis of level of development competence of general culture of future specialists in document. The competence of general culture is presented by the important component of communicative competence of future specialists in document science and informative activity. The basic requirements to preparation of new generation of highly skilled specialists of a mark speciality are described (possession, tolerant attitude, professional knowledge toward people, peaceful existence in multinational society, ability to control the behavior, ability to talk, ability to listen people, ability to estimate a situation and people, decide conflicts, understand and use the un verbal means of intercourse et al). Attention is accented on importance of systematic diagnostics of level development of communicative competence of future specialists in document and informative activity. The researchers of level of communicative competence of specialists of different directions are syndicated (T. Butenko, D. Godlevskaya, T. Denishich, Y. Yeshenko, V. Kirichuc, N. Nazarenko, T. Nepomniasha, O. Smirnova, O. Tumilova et al). In the article concept the competence of general culture is given. The Scientifically-pedagogical methods of diagnostics of competence of general culture are indicated (method of questioning, method of discussion, testing method, mathematical methods). The results of methodologies of research of readiness to cross-cultural cooperation of future specialists in document and informative activity are presented. The results of level of preparation on the general culture of future specialists in document and informative activity are presented. General conclusions on issue of research and prospect of further researches are presented.

Keywords: communicative competence, method of questioning, method of discussion, testing method, mathematical methods, diagnostic methodologies.

USE OF ACTIVE METHODS IN THE COURSE OF PROFILE TRAINING OF SENIORS OF PRODUCTION TECHNOLOGIES

Chubar Vasyl

Article is devoted to enhancement of use of active training methods in the course of profile training of production technologies of seniors of general education educational institutions. In a research the author used complementary methods: studying, the analysis and systematization of psychology and pedagogical and methodical literature, system and problem no search methods for reasons for ways of enhancement and use of active training methods, in particular problem training, collective forms of educational activities and didactic games. Analyses approaches of a number of authors to contents of the term «active methods of study» and offered the option. The tradition of training methods in the course of profile training of seniors of production technologies determined ways of enhancement of methodical training of future teachers of technologies for complex use active. Offered approaches on use of problem training, collective forms of educational activities and didactic games for the solution of the educational tasks as close as possible to real production situations. Besides the author came to a conclusion that active training methods can be considered as specific technology of training which provides: any activization of cerebration of pupils; their motivational and emotional development in educational process; purposeful involvement of seniors in process of cognitive activity; regular interaction of the teacher and pupils; development creative, capabilities of pupils. Active methods of study play an important role in educational process and promote forming of motivation in seniors to receipt of new knowledge, acquisition of experience of interpersonal communication, practice of group interaction and decision making, a frictionless cooperation.

Keywords: active methods; profile training; production technologies; problem training; collective forms of study didactic games.

MODERNIZATION OF TRAINING SYSTEM OF STEM - COURSES OF STUDY AS THE METHODOICAL PROBLEM

Sharko Valentina

The reasons of actualization of STEM courses of study teaching problems have been analysed, the aims and objectives of STEM edacation have been defined, the ways of their realization have been pointed out. The degree of readiness of the modern Ukrainian secondary educational establishments for implementation of STEM education requirements has been determined. The methodical problems, solving of which should facilitate the preparation of school youths for choosing STEM professions, have been defined.

Keywords: STEM-education, STEM-learning, STEM-courses of study, technical, research and technological competence.

FORMATION OF PROFESSIONAL COMPETENCE OF FUTURE TEACHERS IN THE STUDY TECHNOLOGIES PROFESSIONAL DISCIPLINES

Schyrbul Alexander

In the article the problems of formation of professional competence of future teachers of technology. Carried out a theoretical analysis of domestic and foreign scientific literature on the interpretation of the terms «competence» and «competence». Based on this analysis it can be argued that in matters of definition of terminology there are different scientific opinions. Some scientists believe that «competence» and «competences» are synonymous, while others distinguish these terms in its structure and essence. In particular, it was found that «competence» is what characterizes the man himself, a certain set of personal qualities that ensure the effectiveness of professional activity in a certain area, and «competence» is a characteristic of place, not a person, that is setting the social role of the man. If the person corresponds to the place (social role), it is considered that he is competent. Competence characterizes the degree of assimilation of competence and determines the person's ability to solve certain tasks. Also in this publication identifies the key (invariant) types of competencies that must possess any specialist and identified and described the types of competencies necessary for future teachers of technologies after studying the discipline «Technical creativity». These types are: cognitive, communicative and creative. No doubt, for the future organization of the educational process with pupils, the students speciality «Technological education» required a thorough knowledge of the various fields of human activity (cognitive aspect). It is primarily the possession of modern technologies of processing of various materials, technology, information and computer software training, knowledge of methods of teaching. The specificity of a teacher's work requires a constant communication with students, colleagues, creative approach to its activities, which involves the ability of the teacher to think critically, ability to analyze, synthesize, solve different problem situations, etc., that is, communication and creative competences are important for the formation of professionalism of the teacher. Further study of the problem of formation of professional competence of future teachers of technologies, we see both theoretical and practical development of the types and structure of competencies that are key for students of a particular specialty or specific discipline.

Keywords: competence, competences, knowledge, abilities, skills.