

# Pedagogical Sciences

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## **Features of Attitude to the Disease of Patients with Chronic Renal Failure**

*Keywords:* attitude to disease; components of attitude to disease; coping behavior; features of attitude to disease; chronic renal failure

*Abstract:* In this article the authors discuss the concept ‘attitude to disease’, basing their conclusions on the theory of relations of V.N. Myasishchev. They define such characteristics of the attitude to the disease as integrity, activity, awareness, selectivity and consider its cognitive, emotional, motivational and behavioral components. The authors describe the results of the study of the attitude to the disease of patients with chronic renal failure.

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*N.N. Vyborova, M.Yu. Permyakova*

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## **The Role of Functional Graphic Competence in Training Students for Unified State Examination**

*Keywords:* graphic tasks; unified state exam in Physics; metasubject skills; cross functional training activities; functional graphic literacy.

*Abstract:* The article gives ground to intersubject communications of Mathematics and Physics, particularly to the fact that functional graphic competence of students is very important for studying Physics. A definition of functional graphic competence is given. Functional graphic skills to be used at passing the Unified State Examination in Physics are featured. The authors distinguish some types of graphic tasks in Physics that can be done by students efficiently only if they acquire sufficient functional graphic competence.

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*N.V. Kondrashova*

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## **Using Riddles in the Implementation of Federal National Standards for Preschool Education**

*Keywords:* mystery; standardization; preschool education; education; development; Federal national educational standard.

*Abstract:* The author describes the main types and pedagogical value of riddles. In view of the latest achievements of pedagogical theory and practice the author justified the modern methods and techniques for the use of riddles in conditions of standardization of preschool education, which allows for effective implementation of the 5 main educational areas of basic educational program (social and communicative, cognitive, verbal, artistic, aesthetic and physical development).

page 14-17

*N.A. Korbukova, E.G. Podkopayeva, A.A. Serdyukov, N.N. Karelin, I.V. Shelegin, R.V.*

*Shupeiko*

*Moscow State University of Food Production, Moscow*

## **Relevance of Revival of ‘‘Ready for Labor and Defense’’ Program for Physical Health and Harmonious Development of an Individual**

*Keywords:* quality improvement; All-Russian sports program; valuable potential of physical culture; health.

*Abstract:* In this article the authors explore the importance of revival of All-Russian sports program and its integration with the educational process to evaluate sports achievements of the learners and encourage self-development.

page 18-20

*E.V. Sakharova*

*Immanuel Kant Baltic Federal University, Kaliningrad*

## **Methods of Studying the Dynamics of Students’ Adaptation at Different Stages of Schooling**

*Keywords:* adaptation; author’s methodology; quality of methodology; parental involvement; study of dynamics of adaptation; support.

page 21-23

*Abstract:* The article discusses the author's methodology of studying the dynamics of adaptation of students at different stages of schooling in the context of social and psychological interaction and the role of parental involvement in the prevention and overcoming of the problems of the adaptation period.

*O.L. Shepelyuk*

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#### **Independent Work of Students as a Preparation Stage to Professional Work**

*Keywords:* competence; professional activity; independent work of students; federal national standards of higher education; oil and gas chemistry.

page 24-27

*Abstract:* The article examines the role and importance of independent work of students in the modern competency model of education, its methodological framework, the possibility of using new forms of organization and its optimization.

*S.V. Lukicheva, E.Yu. Yushkova*

*Siberian State Technological University, Krasnoyarsk.*

#### **The Analysis of Effectiveness of Adaptative Courses in the Context of Education Quality Improvement**

*Keywords:* adaptation; competencies; permanent education; education quality; efficacy; algorithm.

page 28-34

*Abstract:* The authors describe the results of the research into the effectiveness of adaptative courses studied at universities. The application of two algorithms for adaptive courses, substantially influencing the formation and development of competencies, and improving the quality of education is justified.

## **Historical Sciences and Archeology**

*S.V. Lukicheva, E.Yu. Yushkova*

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#### **The Analysis of Effectiveness of Adaptative Courses in the Context of Education Quality Improvement**

*Keywords:* adaptation; competencies; permanent education; education quality; efficacy; algorithm.

page 35-39

*Abstract:* The authors describe the results of the research into the effectiveness of adaptative courses studied at universities. The application of two algorithms for adaptive courses, substantially influencing the formation and development of competencies, and improving the quality of education is justified.

*K.P. Igolkina*

*Kuban State University, Krasnodar*

#### **Adolescent Offenders in Juvenile Correctional Facility: Empirical Research**

*Keywords:* adolescent; socialization; agents of socialization; juvenile correctional facility; prison subculture, social identity.

page 40-44

*Abstract:* This article describes the results of a sociological survey conducted in Belorechenskaya juvenile correctional facility among adolescents and administration of the institution. The author has identified the features of the process of socialization and identification of adolescent offenders, the impact of socialization agents, as well as the perception of their sheltered environment.

*O.A. Suleymanova*

*Kola Scientific Center of the Russian Academy of Sciences, Apatity*

#### **Possessions as Means of Adaptation to a New Place of Residence (Case Study of Migrants of the Kola North of the Last Third of the 20th – Early 21st Centuries)**

*Keywords:* adaptation; moving home behavior; possessions; migrants; moving home.

page 45-49

*Abstract:* The paper is devoted to the features of behavior when moving home. The study found that in the process of adaptation to a new place of residence personal possessions play an important role. The author identified basic types of possessions which are used for the

organization of a new dwelling, help to get settled and satisfy the material and spiritual needs in the household, and contribute to successful adaptation.

*I.V. Chirkunov*

*Lobachevsky Nizhny Novgorod State University, Nizhny Novgorod*

### **The Analysis of Industrial Development of the Nizhny Novgorod Province in the Second Half of the 19th – Early 20th Centuries**

*Keywords:* province; enterprise; industry; population; economic development; labour market; property; home production.

*Abstract:* In this paper, the author attempts to analyze the degree of industrial development of the Nizhny Novgorod province in the second half of 19th – early 20th centuries, to consider a number of contradictions and problems encountered in the industries of the region. To explore this question a number of competent sources was used. Much attention is paid to the comparative analysis of the literature of the late 19th – early 20th centuries and works by Soviet authors, especially V.I. Lenin. The main method of archival materials was a method of source analysis, which helped to answer the questions.

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## **Machine Building and Engineering**

*S.N. Bazykin, N.A. Bazykina, V.A. Vasiliyev, K.S. Samokhina*

*Penza State University, Penza*

### **Application of the Phase-Locked Looped System in Laser Interferometers**

*Keyword:* information-measuring system; laser radiation; laser interferometer; phase-locked looped system; frequency multiplication; electric signal phase.

*Abstract:* The authors study the phase-locked looped system in information-measuring systems on the basis of laser acoustics-optical interferometers. It is shown that application of the system of phase-locked looped system when processing the electric measuring signal allows obtaining  $\lambda/128$  measuring information sensitivity. When using the sources of optical radiation of visible range the value of sensitivity is approximately 5 nm.

page 55-57

*N.S. Vasilyev, M.S. Kazantsev, K.P. Pompeyev*

*St. Petersburg National Research University of Information Technologies, Mechanics and Optics, St. Petersburg*

### **An Approach to Working Time Evaluation of Multi-Axis Machining and its Optimization**

*Keywords:* computer numerical control (CNC); five-axis milling; optimization; working time evaluation.

*Abstract:* The article deals with modern problems of assessing the complexity of the development of NC programs and the manufacture of parts with the proposed approach to the optimization of five-axis machining of complex profile surfaces. Hence, a series of experiments involving the simulation of non-uniformity of material removal was performed. At the same time before the physical experiments their virtual simulation was performed to optimize cutting conditions. The resulting control program was tested on an NC milling machine. For prepared samples the roughness of the machined surfaces was determined on the basis of the profilograms with their comparative analysis. Average processing time using optimized cutting conditions decreased to 20 % without significant loss of quality of surface.

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*S.V. Loparev, R.A. Tryastsin*

*Tyumen State Oil and Gas University, Tyumen*

### **Optimization of Reliability Function of Trunk Pipelines Considering Minimization of the Total Cost**

*Keywords:* reliability function; pipeline; minimization of total cost.

*Abstract:* Optimization of function of reliability of mechanical system, to which the main pipelines belong, is equivalent to minimization of the total expenses incurred at design stages, production and operation during all term of existence of mechanical system. Based on provisions of system engineering, according to the used criteria of reliability it is possible to optimize design decisions of mechanical systems; the processes connected with their production, assembly and installation; fail-safe tests of system; operational modes.

page 65-69

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*Orenburg State Pedagogical University, Orenburg*

**The Study of Stresses at the Second Stage of Production of Composite Materials by Polymerization in Automated Technological Process**

*Keywords:* deformation; stress state; residual thermal stress; polymerization; chemical shrinkage.

page 70-73

*Abstract:* In this paper, the authors describe the results of investigation of the stress state of a product in production of composite materials. The effect of the temperature change rate, temperature and duration of heating, the polymerization process and residual stresses on the quality of the product is discussed. The consequences of violations of cooling of composite materials in automated technological process installations are studied.

*R.A. Kharisov, R.F. Safarov, I.R. Farkhetdinov, A.A. Yausheva, T.R. Mustafin*

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**Features of Pipeline Repair Using Couplings of Various Designs**

*Keywords:* pipeline repair; coupling; welded couplings; flexible couplings; couplings assembly.

*Abstract:* Currently, the main pipelines of our country have been in operation for a long time. According to the statistics, the majority of emergency situations are caused by the "age" of the pipelines because 75 % of the pipelines have been in operation for over 20 years and about 46 % for more than 30 years. The emergency situations are most likely to occur due to damage resulting from growth under cyclic loads, or corrosion. To ensure the operation of the pipelines the damaged sections have to be repaired.

A radical method of repair of oil and gas pipelines is cutting of the defective areas, and replacing them with new pipes. However, with an increasing number of defects, the costs of cutting and replacing are becoming unbearable. In this regard, a repair technology that does not require cutting of defective section and in some cases stopping of the product transportation has been developed in the world practice of repairing pipelines. In 2013 more than 1,040 km pipeline were replaced and 14,627 defects were eliminated using repair couplings.

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This article describes the repair technology of pipelines with internal pressure up to 10 MPa. The most economical method of repair of such pipelines is installation of repair structures without interruption of the transported product. Such repair structures are couplings and tees. These types of structures can extend the resource of the repaired section for another 15 years when using tees and 30 years when using couplings.

Additional advantages of coupling repair of pipelines are its simplicity and execution speed. However, there are some restrictions on the ambient temperature, which makes the method inefficient for pipelines in permafrost soils.

## **Information Science, Computer Engineering and Management**

*G.G. Arunyants, A.R. Badeyan, D.A. Airapetov*

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**An Approach to the Construction of Software-Aided Management of Banking Resources in Lending To Businesses**

*Keywords:* bank risk, algorithm, information support, software, program complex, graphic interface, cross-platform appendix, user interface

page 80-91

*Abstract:* The authors describe the results of the development of the universal software system RRB-01 of automated distribution of bank resources when lending to businesses using the optimum strategy of risk management. The logic of interaction of the software and the risk management system is analyzed. The structure and features of RRB-01 implementation are described.

*N.P. Kryazheva, N.K. Maltseva, E.O. Raskin, R.A. Yuryeva*

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*Petersburg*

**Closed-Circuit Television Systems of Measuring the Size of Surface Defects of Structural Elements of Man-Made Objects**

page 92-100

*Keywords:* closed-circuit television measuring systems; technogenic safety; contrast.

*Abstract:* Television systems of measuring surface defects of structural elements of man-made objects provide observers with visual information. In most cases closed-circuit television systems function as security CCTVs and do not provide sufficient data to the observer. This happens due to the fact that the design of the system does not take into account a number of independent information indicators: the angular size of the object image or its parts, the level of adaptable brightness, the contrast between the images of the object and the background, the time of image (object motion) perception and the noise contamination.

*Mazhar Jan, Yu.S. Sakharov*

*International University of Nature, Society and Man "Dubna", Dubna*

### **Prospects of Using Wi-Fi Calling and Femtocells to Increase Network Coverage**

*Keywords:* Wi-Fi calling; femtocell; network optimization.

*Abstract:* The authors explore the prospects of using Wi-Fi calling and femtocells for solving problems of network coverage. Both technologies are quite promising and can be implemented in Russian networks. But Wi-Fi calling has more advantages as Wi-Fi networks are widespread and impose less requirements for investments in operator infrastructure.

page 101-103

*I.P. Skirnevsky, I.I. Savenko, A.V. Pustovit, G.P. Tsapko*

*National Research Tomsk Polytechnic University, Tomsk*

### **Segmentation Type Searching System for Different Types of Images**

*Keywords:* de-noising; image noise; Gaussian filter; Winner filter.

*Abstract:* The paper describes an approach that allows eliminating problems related to the use of various algorithms for removal of digital noise of images with complex structures that differ in contrast, sharpness and other characteristics. The authors discuss the problems that researchers may encounter when using this method.

page 104-108

*P.S. Stashevsky, I.N. Yakovina, O.V. Dunicheva*

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*Novosibirsk Regional Clinical Dispensary, Novosibirsk*

### **The Technology of Decision Support in Healthcare Information Systems**

*Keywords:* decision support; healthcare; information system; technology.

*Abstract:* The article provides a description of the technological process to support management decision-making in health care. It describes a generation of variants of administrative decisions to the problem of forecasting of infectious diseases.

page 109-113

*S.I. Shterenberg, A.A. Raskevich, A.A. Chekalov*

*Bonch-Bruевич St. Petersburg State University of Telecommunications, St. Petersburg*

### **The Method of Disassembling Viruses Using Rootkit Technology to Analyze Statistics of its Integration with the Technology of Adaptive Security**

*Keywords:* rootkits; adaptive systems; disassemble; debugger; immune protection.

*Abstract:* The paper describes a method of disassembling a virus using rootkit technology and statistics of its application to include in the construction of *Solder\_RPA* adaptive protection system applications.

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## **Economic Sciences**

*A.A. Bazhanov*

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### **From Soviet Trade to Modern Retailing**

*Keywords:* retail; retail markets; retail food chains; trade; shopping malls.

*Abstract:* The article proposes to consider the development of modern retail formats beginning from the development of the socialist trade to date. The study of trade as a historical category identified the traditional features and prerequisites for the development of modern retailing.

page 120-123

*Yu.A. Bezrukikh, S.O. Medvedev, T.G. Ryabova*

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**The System of Management of Timber Companies in Conditions of Sustainable Development of the Economy at the Present Stage: Methodological Aspects**

*Keywords:* management system; timber company; management mechanism; management subsystem; management system; sustainable development

page 124-128

*Abstract:* This article presents the main methodological approaches to the formation of management system of timber companies that ensure environmental management. The results indicate the need to develop a mechanism of formation of management systems of timber companies, taking into account the factors of negative and positive impact on the sustainable development of the economy of the company.

*E.I. Kulikova*

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**Improving the Methodology of Regions Classification**

*Keywords:* typology; regions; quality of life; social indicators; investment potential; public policy.

page 129-131

*Abstract:* On the basis of the study of conceptual approaches to the methodology of regions classification the author proves that methodology of Russian regions classification should be based on the improvement of the quality of life through the development of market relations in the Russian regions.

*E.V. Lavrova*

*Smolensk Institute of Business and Entrepreneurship, Smolensk*

**Capitalization of Innovative Potential of Industrial Enterprises through Cluster-Oriented Regional Policy**

*Keywords:* industrial park; innovation potential; competitiveness; cluster-oriented regional policy; organizational and managerial innovations.

page 132-136

*Abstract.* The article examines the organizational and managerial innovations as a factor of long-term conservation and development of competitive advantages of enterprises; describes the organizational model of the industrial enterprises in the form of the industrial park and the advantages of this model; the dynamics of key indicators of industrial parks; an organizational-methodical approach to the formation and implementation of cluster-oriented regional policy to capitalize the innovative potential of industrial enterprises.

*L.A. Ramenskaya*

*Ural State Economic University, Yekaterinburg*

**Methodological Research Tools of Risk Management in Russian Corporations**

*Keywords:* corporate governance; Russian corporations; risk management system.

page 137-142

*Abstract:* The article describes the methodological tools of research and evaluation of the risk management system based on publicly available information. The basic stages of the methodology are illustrated by five major Russian corporations.

*E.S. Charkina*

*Department of Investment Projects, Target Programs of the Russian Federation Ministry of Regional Development, Moscow*

**Implementation of Investment Projects on the Basis of Concession Agreements in the Russian Regions: Advantages and Challenges**

*Keywords:* concession agreements; investment projects; Investment Fund of the Russian Federation; financial and economic efficiency of concession projects.

page 143-146

*Abstract:* The article examines the implementation of investment projects, including concession agreements. The advantages and problems affecting the implementation of the project have been identified. Also, the dependence of the financial and economic efficiency of concession projects on the availability of Federal and regional legal acts governing the formation of the business climate and infrastructure to stimulate business activity has been noted. It is shown that the limited number of regional concession agreements and the complexity of their implementation are associated with the inadequacy of federal and regional legislation, ambiguity of government decisions and lack of guarantees of return on investments.

Recommendations on the forms of state support to prepare for the implementation of investment projects have been made.

## Legal Science

*N.A. Volkov*

*Gorbachev Kuzbass State Technical University, Kemerovo*

### **Respect for Human Rights in the Penal System in the Siberian Federal District**

*Keywords:* penal system; condemned; human rights; rule of law.

*Abstract:* The penal system in the Siberian Federal District includes 185 institutions. As of January 1, 2015 the number of prisoners and persons with respect to whom a preventive measure in the form of detention, amounted to 127,646 persons. The main activities of territorial bodies and institutions of the penal system related to human rights is to ensure personal safety, medical support and sanitation of the prisoners, dealing with applications, employment of convicts, their professional and general education, providing them with social, psychological and legal support to ensure freedom of conscience and freedom of religion, etc.

page 147-150

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*Federal Mediation Institute, Moscow*

### **Satisfaction of the Parties in Dispute Based on Positive Reinforcements of De-Escalation Behavior**

*Keywords:* mediation; dispute; positive reinforcement; satisfaction; modeling of disputes.

*Abstract:* The article presents the results of experimental modeling of disputes through dialogue between the parties; one party (the active party) has implemented positive reinforcement in relation to the acts and statements of the other party, contributing to the settlement of the existing dispute.

The study involved 44 people who had 22 disputes. The participants were distributed into two groups. One group was investigated on the effect of increased encouragement to the satisfaction of the parties with the dialogue (GP group – 24 people). The second group included active participants, who had the task of reducing the level of encouragement (GS group – 20 people). The choice of active and passive participants, and their inclusion of in the groups, lowering or increasing the level of encouragement, was randomized.

The study determined that the presence of positive reinforcements in the dialogue did not help to increase satisfaction with the dialogue and the negotiated agreements of active participants. At the same time, with the reduction in the level of encouragement, there was a decrease in satisfaction with the dialogue of passive participants.

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## Biotechnology and Medicine

*A.Yu. Markina, E.Yu. Vanin*

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### **Morbidity of Newborns and Features of Health of Children without Parental Care**

*Keywords:* morbidity of children without parental custody; morbidity of newborns; social orphanhood.

*Abstract:* The research focuses on the level and structure of morbidity of newborns left without parental care in maternity hospitals. The study was based on the analysis of data from the records of maternity hospitals. The study was conducted retrospectively; the information was gathered during six years, including a period preceding the implementation of the national project “Health” 2003–2005 and first three years of the project implementation. The data clearly indicated that the level of health of the children without parental care was significantly lower than that of infants born in the city of Chelyabinsk. The results indicated that efforts being made in the action plan of the national project “Health” had a weak influence on the health of this group of children.

page 157-162

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### **Features of External Respiration in Children with Various Disorders of Posture**

*Keywords:* children of primary school age; posture disorders; posture; indicators of external respiration; sagittal curves.

*Abstract:* Posture disorders and deformation of foot arch are quite widespread in health and physical development of pupils. The frequency of such disorders among school children ranges from 50 to 65 % of the surveyed children. There is a link between severe forms of posture disorders with physical condition of other systems that have a negative impact on functioning. The article discusses the external breathing of primary school children, depending on the degree of excessive sagittal spinal curvatures.

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## **Linguistics**

V.Yu. Kryakvin

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### **On the Origin and Features of the Usage of Grand Style and Poetic Idioms in Modern German Language (German Journalistic Discourse)**

*Keywords:* grand style idioms, idioms labeled “gehoben”; idioms labeled “dichterisch”; poetic idioms; journalistic discourse.

*Abstract:* The article examines the problem of identification idioms with labels “gehoben” and “dichterisch” in modern German lexicographical editions of and describes the features of their usage in journalistic discourse. It is the goal of this paper. Scientific originality of the research is conditioned by the need to study this type of idioms, which constitute a significant part of the total number of idioms in the German language; they are characterized by their active usage. The author offers new terms for these types of idioms – “grand style idioms” and “poetic idioms”. In its origin the most grand style idioms are native German lexemes. Most of the idioms are verbal and adverbial idioms with the syntactic structure of prepositional groups of words. Poetic idioms are divided into idioms infrequently used in the journalistic texts, verbal idioms and adverbial idioms with the syntactic structure of prepositional word groups, more frequently used idioms and noun idioms.

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## **Chemical Technologies**

A.N. Bushuev, S.V. Zhykovin, O.V. Chernova, D.A. Kondratyev

Vyatka State University, Kirov

### **Electroreduction of Terbium Ions in Equimolar Molten Mixture of NaCl-KCl**

*Keywords:* melt; terbium; cyclic voltammetry.

*Abstract:* This work investigates the cathodic reduction of terbium ions in equimolar NaCl-KCl melt in the temperature range of 1,073–1,173 K. The method used for the cyclic voltammetry nickel electrode with a pre-deposited intermetallic TbNi<sub>2</sub> coating composition in the range of potential sweep rates from 50 to 200 mV/s containing 3–10 % by weight TbCl<sub>3</sub>. It is shown that the cathodic reaction follows the scheme  $Tb^{3+} + 3e = Tb$ . The diffusion coefficients of terbium ions were found; the value of the activation energy for the diffusion process of terbium ions was estimated.

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Tyumen State Oil and Gas University, Nizhnevartovsk

### **The Study and Analysis of Aggressiveness of Transported Formation Water and Pipeline Runs of Tevlinsko Oil Field Group**

*Keywords:* aggressiveness of environment; corrosion; chemical composition.

*Abstract:* The aim of this study is to evaluate the effect of chemical composition on the rate of corrosion, which will determine the choice of steel grade oil and gas pipelines that provide the required durability when operating under these conditions.

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# Ecology and Nature Management

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## **The Analysis of Ecological and Economic Balance of the Urban District of Bor**

*Keywords:* ecological and economic balance; balanced management of the territory; natural resources potential; demographic potential; ecological potential; basic indicators.

*Abstract:* The article deals with the problems of ecological and economic sustainable management of the territory of the municipality. Based on the analysis of statistical and cartographic data, as well as regulatory documents the features of natural resources, economic, demographic and ecological situations of rural areas of the urban district of Bor are defined. The author identified the causes and made recommendations for eliminating the ecological and economic imbalances of the settlements.

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