

Architecture and Construction

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Results of the Study of the Impact of Town-Planning Decisions on Road Traffic Parameters Change in Tyumen City

Keywords: traffic management; transport demand; traffic communications matrix.

Abstract: The paper studies the case of Street-road network - Stariy Tobolskiy Trakt Street in the city of Tyumen – to assess the impact of the city planning decisions on the transport demand and other traffic parameters. The estimates were obtained through the established methods based on the analysis of traffic flows in the dynamics and the construction of the matrix of transport communications.

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Pedagogy and Psychology

O.N. Berishvili

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Methodological Approaches to Education Systems Design

Keywords: methodological approaches; education systems; adaptation; professional training.

Abstract: The article considers the nature, principles, possibility and expediency of integration complementary methodological approaches to the design of education systems (system-based, synergistic, activity-oriented, personality-oriented, environmental, situation-based, axiological) that combine various aspects of the design of adaptive system of professional training.

page 14-19

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Environmental Project Activity as a Component of Students' Social Experience

Keywords: project activity; environmental projects; environmental competence; environmental culture.

Abstract: The changing nature of social-economic relations in society that occurred in the last decade has led to the changes in social priorities in the educational policy of the society and citizens that requires finding new ways of training, education and student leisure activities. Nowadays, the work on the environmental projects has become an essential part of education, as it enhances students and teachers' motivation.

page 20-23

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The Analysis of Pilot Data for the Development of Technical University Professional Training of Natural Sciences Students

Keywords: alternative hypothesis; null hypothesis; pedagogical conditions; educational and cognitive activities; forming experiment; 2 χ -Pearson criterion.

Abstract: This paper analyzes the pilot data through the study of pedagogical conditions that influence the development of professional training at technical university when studying natural sciences.

page 24-30

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Socio-Educational Integration of Children with Disabilities

Keywords: social and educational rehabilitation of children with disabilities; social integration.

Abstract: The paper considers social inclusion of children with disabilities into society. The author analyzed the positions of the leading specialists in this area, considered the necessary conditions for effective integration of children with disabilities into the regular educational environment.

page 31-33

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Resources of School Professional Environment as a Factor of Teacher's Self-Development

Keywords: professional environment; resources of school professional environment; self-development of teacher.

page 34-38

Abstract: In this paper, we explored the resources of school professional environment (as a kind of theoretical model) and their influence on self-development of a teacher. We identified the mechanisms of detection and use of organizational and pedagogical resources.

A.K. Sviridov

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Behavior Peculiarities in Situations of Uncertainty

Keywords: modality; perceptual universal; behavior of an individual; uncertainty; strategy of behavior; consciousness; personality types.

page 39-42

Abstract: The paper expands scientific understanding of the phenomenon of semantic reflection of reality, reveals the mechanisms of influence of modalities of information on the process of getting sense of an uncertain situation, and as a consequence identifies the features of behavior in situations of uncertainty.

I.R. Shegelman, A.M. Voronov

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Finnish Experience of Testing Physical Ability

Keywords: testing, physical activity, physical education, Finland.

page 43-45

Abstract: The paper describes the experience of Finland in the field of testing and evaluation of physical capacity of state school students; some of the systems used for this purpose are described.

Professional Training

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Systemic and Structural Changes in Modern Higher Education in Russia

Keywords: commercialization; mass-orientation; new subjects of study; anticipation; diverse innovation; strategic management; transformation in higher education.

page 46-49

Abstract: The paper proves the importance of the innovation activity in all directions of development of educational practices in higher education. Understanding of all negative and positive sides of transformation of higher education enables to see the purpose of higher education as fundamental values of society development. The author concludes that by incorporating innovation the university ensures the achievement of the main strategic goals of higher education development.

L.A. Karnaukh, Yu.P. Vetrov

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Stages of Formation of University Students Commitment to Develop Professional Competencies

Keywords: competence approach; students' willingness to develop professional competences; stages of readiness; value-motivational component; intellectual and information component; operational-active component.

page 50-52

Abstract: The paper stresses the need for gradual development of students' readiness to develop and apply professional competences, which is facilitated by step-by step integration of students in the university learning environment. The most effective ways of developing value-motivational, intellectual and operational-active attitudes were discussed.

E.A. Ostrikova

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School Local History as a Subject of Pedagogical Reflection

Keywords: regionalization of education; local lore work; school local history; school local history directions; collective and individual creative activity.

Abstract: The paper considers the role of the school local history in the solution of the leading problems of regionalization of the education system. The author analyzes the school local history, its possible areas of implementation and related types requiring special approach to organization of educational-cognitive activity of school students. The importance of school studies for construction of collective and individual creative activity of students is verified.

page 53-56

E.A. Prokhorova, Yu.P. Vetrov

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Methodological Conditions of Culturological Approach to Professional Training of Students

Keywords: immanence; research; culturological paradigm; cultural functions of education; interdisciplinarity; methodology of science.

Abstract: The paper describes theoretical aspects of applying culturological approach to professional training to improve theoretical and methodological understanding of the peculiarities of this process in higher education. The authors detailed the cultural function of education and systematized the directions of research into ways of application of culturological approach to training students. The authors proved the interdisciplinarity and immanence of culturological approach in education.

page 57-59

History, Philosophy and Sociology

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Causes and Background of English Population Migration to the New World in the Early XVI–XVII centuries

Keywords: catholics; colony; England; New World; protestants; puritans.

Abstract: This paper explores the causes of population migration from the British Isles to the British North American colonies from the beginning of the XVI century. The author considers the prerequisites of the migration of the British to the New World in social and economic life of English society, but the focus of the author is the religious issues, which was extremely aggravated during the period due to the Reformation of the church undertaken by the royalty.

page 60-63

E.V. Rodionov

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On the Development of Private Entrepreneurship in the Years of Perestroika (Case Study of Bashkir Autonomous Soviet Socialist Republic)

Keywords: individual labor activity; cooperation; entrepreneurship.

Abstract: This paper discusses the process of developing private entrepreneurship started in the Russian economy at the turn of 1985–1991. The author investigates the interaction between the government and private business through the case study of Bashkir Autonomous Soviet Socialist Republic.

page 64-66

Philology

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Narrative of Fictional Text as an Object of Narratology and Historical Poetics

Keywords: communication strategies in narrative; eventfulness; historical poetics; theory of narration.

Abstract: Being one of the most popular and developing field of contemporary literary studies, narratology often comes under criticism for its abstractiveness and non-historicity. The paper provides the principle of historical approach to the problem of studying of the narrative of fictional texts based on the combination of narratology and historical poetics.

page 67-71

Engineering

V.I. Grigoriev

Petrozavodsk State University, Petrozavodsk

Organizational Changes as a Factor of Development of Russian Machine-Building Engineering

Keywords: innovation; engineering; organizational change; enterprise; management.

page 72-75

Abstract: The author shows that the market adaptation and improvement of competitiveness of Russian machine-building enterprises for their adequate response to the progress and risks of market transformations can be enhanced through science-based management of organizational changes.

Mathematical Methods and Models

I.G. Andronov, M.A. Sevodin

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One Approach to the Construction of Economic Performance

Keywords: clustering; generalized index; tetrads; factors.

page 76-80

Abstract: The method of constructing the generalized parameter of economic efficiency of the economic system was proposed. The construction was carried out in several stages. First, space characteristics were split into groups and each group was assigned its own index. At the next stage, the same was applied to the groups with assigned indexes. This approach enables to produce a composite indicator of economic activity of regions of the Ural Federal district through their comparison in tax collection.

D.B. Vladimirova, A.L. Derevyankina, A.R. Zhenetl

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The Analysis of the Effect of Heating Element Temperature on the Stability of Silica Fiber Drawing

Keywords: optical fibers extraction; stability; furnace temperature; finite-difference method.

page 81-85

Abstract: The influence of temperature of a heating element on the stability of the optical fiber drawing process was considered. The drawing process is described by a system of differential equations in private derivatives. In order to study the stability of the system the linearization was made, the method of separation of variables and the finite-difference method were applied. In the work, optimum parameters of a heating element were received.

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Simulation of Heating Quartz Preform in MCVD Process by ComsolMultiphysics

Keywords: simulation; quartz preform; MCVD process; ComsolMultiphysics.

page 86-91

Abstract: The authors described the solution of the problem of heat conduction in the «quartz-gas» system using ComsolMultiphysics computing for simulation of MCVD process with a moving heat source.

E.V. Vlasova, M.A. Sevodin

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The Balance of Supply and Demand in the Market of Substituting Goods

Keywords: balance of demand and supply; procurement; price fluctuations; equilibrium prices; goods.

page 92-96

Abstract: On the basis of the «spider» model of single commodity market the authors of the paper studied the role of management bodies of the economy in the balance of supply and demand. It is shown that the action of the state aimed at purchasing or selling of some amount of substituting goods can stabilize the fluctuations of prices on the market with an unstable equilibrium. This requires certain restrictions on the volume of purchased goods, which are defined in the paper. Such government action is considered in the double commodity market with linear functions of supply and demand.

A.R. Davydov, N.N. Ogorodnikova

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Evaluation of the Level of Socio-Economic Development of the Russian Federation Regions through Multivariate Statistical Analysis

Keywords: regional economy; socio-economic development; statistical methods; factor analysis; cluster analysis.

page 97-101

Abstract: The paper is devoted to the analysis of indicators of economic and social situation in the regions of the Russian Federation, as well as the development of evaluation technique of the regions through the methods of the factorial and cluster analysis.

A.V. Ermakov

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Description of the Simplified Method of Modeling Systems with Elastic Links in Matlab with Simulink Simmechanics Extension Package

Keywords: links; Lagrange; manipulator; model; SimMechanics; elasticity.

page 102-106

Abstract: The aim of this work is to determine ways of modeling systems with elastic ties. The purpose of this study is to analyze the problems in the system with elastic links and search for solutions. The mathematical description of the method of partition sector for several rigid parts connected by elastic elements was made. The possibility of elastic systems modeling in Simulink environment was considered. The expected results include a simplified way of representing the elastic system, which allows with a certain degree of accuracy simulate the system in SimMechanics.

G.A. Pushkarev, E.Yu. Vorobyeva

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The Solvability of the Boundary Problem for the Differential Equation with the Deviation of the Argument

Keywords: functional-differential equation; boundary value problem.

page 107-111

Abstract: The paper examines the problem of solvability of a nonlinear boundary value problem $(\Lambda x)(t) = f\left(t, \int_a^b x(s) d_s R_0(t, s)\right)$, $t \in [a, b]$, $x(a) = \alpha$, $x(b) = \beta$ in the following assumptions: operator $\Lambda : W^2 \rightarrow L$ is defined by equality $(\Lambda x)(t) = x''(t) + \int_a^b x(s) d_s R_1(t, s)$, functions $R_1 : [a, b] \times [a, b] \rightarrow R^1$ and $R_0 : [a, b] \times [a, b] \rightarrow R^1$ are measurable in the square $[a, b] \times [a, b]$; function $f : [a, b] \times R^1 \rightarrow R^1$ satisfies the conditions of the Caratheodory spaces: $f(t, u)$ is measurable in t for all u and is continuous by u for almost all $t \in [a, b]$. The method of monotone operators was applied.

V.A. Sokolov, R.V. Gubaidulina

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On Impulse Control over Expenditures in Vidale-Wolfe Advertising Model

Keywords: impulse control; Vidale-Wolfe dynamic model; Fredholm integral equation; piecewise constant delay; W-substitution.

page 112-117

Abstract: The paper studies the impulse control for the linear Vidale-Wolfe model with piecewise constant delay of salability depending on the cost of advertising. The impulse control was produced. Also, the approximate solution of the boundary value problem with a guaranteed accuracy solution was produced.

Computer Science

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Ground Control Points Identification for Medium Spatial Resolution Satellite Images Based on the Geometric Distortion Regression Model

Keywords: covariance matrix; Earth remote sensing; ground control points identification; image processing; regression model.

page 118-124

Abstract: The author proposed a solution for automatic interdependence control points identification on medium spatial resolution satellite images based on the Google Maps service.

Control points identification flow sheet for the concerned equipment was proposed. An algorithm for weighted evaluation of geometric distortion regression parameters based on calculated evaluation for control points rotation covariance matrix was described.

D.E. Perekopny

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Formalization of Representation of Subject Domain of the Electronic Commerce

Keywords: *electronic commerce; EC; information retrieval systems; IRS; linguistics; thesaurus.*

Abstract: *The main task of EC systems is to increase the efficiency of interaction between customers and consumers. Information retrieval systems (IRS) play an extremely important role for any business as they cover specific business directions, including market analysis.*

The main objective of the information retrieval systems is systematization and structuring of information on the company activities (concrete direction), as well as complex analysis of the activity of the group or company (in regional, branch or commodity sectors), on the basis of this information.

The paper describes the procedure for the formalization of subject domain of EC based on modern information retrieval systems.

page 125-129

Ecology and Nature Management

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Multi-Optional Flexible Processes of Raw Wood Treatment

Keywords: *wood treatment; timber.*

Abstract: *The authors examined the features of flexible multi-optional processes of raw wood treatment. It is shown that their application permits effective use of woodworking machinery.*

page 130-133

V.N. Gornostayev

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From The History of Forestry Development in the Republic of Karelia

Keywords: *integration; timber science; industry science; university.*

Abstract: *The stages of formation and development of the Karelian Research Institute of Forest Industry are studied in the paper. On the example of Petrozavodsk State University the efficiency of the integration of science and industry is shown.*

page 134-137

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Amur Regional Institute of Education Development, Blagoveshchensk

Environmental and Chemical Evaluation of Small Rivers on the Territory of Vostochny Launch Site being under Construction

Keywords: *small river; Amur region; biogenic elements; organic substances; water quality; launch site «Vostochny».*

Abstract: *The obtained results of hydro-chemical characteristics of small rivers are the basis for further study of anthropogenic load on water bodies of positional area of Vostochny launch site which is under construction. The findings are as follows: low mineralized water, bicarbonate-sodium, concentration of nitrogen, phosphorus and total iron in the summer does not exceed the norms. Silicate ions contribute to the mineralization of the waters of small rivers.*

page 138-141

Economic Sciences

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Formation of the Effective Management Mechanism for Macro-Regional Socio-Economic System

Keywords: macro-region; management mechanism; regional economy; socio-economic system.

Abstract: The paper explores the features and process of formation of the mechanism of effective management of macroregional socio-economic system. Also, the author examined specific elements of the management mechanism for macro-regional socio-economic system.

page 142-145

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Current State of Export in Agribusiness and Direction of Foreign Trade Regulation

Keywords: agribusiness; export; foreign economic activity; regulation.

Abstract: The author stresses that some of the agricultural products and food made in the republic in the system of agribusiness in post-soviet time is exported. The current state of export in agribusiness is evaluated; the directions of improvement of foreign trade regulation in agrarian sector and development of protectionist policy are defined.

page 146-148

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Tools for Strategic Planning of Gas Distribution System Organizations

Keywords: gas distribution organizations; tools and techniques of strategic planning; strategic planning.

Abstract: The article presents a study of problematic issues of strategic planning of gas distribution companies (GDC) in the RF. The author verified and complemented the classification of tools and methods of strategic planning by different categories; the recommendations were given and a set of methods that are most appropriate to use in GDC given the stage s of strategic planning were proposed.

page 149-155

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Consideration of Stakeholders' Interests in Setting the Goals of Innovative Development of Industrial Holding Company

Keywords: innovation; innovative development; innovation process; innovation; stakeholders.

Abstract: This paper substantiates the importance of considering all stakeholders' interests in defining the goals of innovative development of the industrial holding company. A model of balance of interests of innovation activity participants, contributing to the achievement a balance between their goals and interests, has been proposed. The author defined the mechanisms for stakeholder involvement in the holding company activity.

page 156-158

V.A. Makeev

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Cyclicity of Investment Funds Functioning

Keywords: cycles, stock market, investment-speculative portfolio, securities.

Abstract: The author analyzed modern investment portfolio cycles and described their features. The differences and interconnection between investment portfolio and economic cycles were analyzed. The dependence between the cycles and the amount of capital of investment funds and its impact on the overall profitability was examined. In order to prolong the growth phase, the author offered and verified possible strategies and approaches in the management of investment funds owned by the company as its investment capital expands.

page 159-166

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The Ways of Improving State Regulation in the Agrarian Sector of Azerbaijan

page 167-170

Keywords: agricultural sector; entrepreneurship; food security; economic security; agricultural products.

Abstract: One of the main conditions of ensuring the economic security of the country is the development of the agricultural sector. One of the characteristic features of the economic policies of each country is the rapid development of the national economy and economic security. The ways of improving government regulation in the agrarian sector of Azerbaijan, food security in the country were explored in the paper and possible solutions to these problems were put forward.

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Potential Assessment of the Major Companies in the Telecommunication Market in Russia

Keywords: telecommunication market; integration; cellular operator; subscriber; income; profit; competition; investments; indicator of effectiveness.

Abstract: The paper described the financial performance of the mobile network operators, reflecting the dynamics of growth of the telecommunication market.

page 171-174

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Recommendations for Establishing the Program of Actions to Improve the Energy Efficiency of Natural Gas Production

Keywords: program of energy conservation; energy management; energy efficiency; ranking of activities; gas companies.

Abstract: The authors recommend the procedure for the development of the program of energy efficiency improvement at gas companies. The procedure is based on ranking and selection of actions to improve the efficiency of energy consumption by objective criteria (amount and value of saved energy resources, expense volume, ratio of specific costs and saving energy tariffs) and financial constraints. The application of this procedure will improve the expediency and efficiency of the developed program.

page 175-178

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The Analysis of Lending to Individuals in Ulyanovsk Branch of JSC «Rosselkhozbank»

Keywords: credit; loan programs; loan portfolio; credit line.

Abstract: This paper presents an analysis of lending to individuals in the additional Office of the Ulyanovsk branch of JSC «Rosselkhozbank», the composition and structure of the loan portfolio was defined; an assessment of the quality of the loan portfolio was made.

page 179-182

Legal Science

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Combating Corruption and Preventing Corruption Risks in Professional Activity of Tax Authorities in the Information Society

Keywords: corruption; tax control; official government.

Abstract: The paper explored the problem of taking measures to combat corruption in the professional activities of state tax officials. The author studied the concept of corruption risk and legislation gaps in the regulation of officials' relations. Special attention was given to the tax authorities, which are particularly vulnerable to corruption risks. The author described the most probable hazards conducive to the emergence of corruption relations in tax authorities and ways to solve this problem.

page 183-185

Legal Regulation

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The Question of Legal Status of Petrol Stations and Tank Farms in Russian Civil Law: Major Issues and Trends of Improving Legislation

Keywords: civil law; composite thing; immovable; indivisible thing; petrol station; real estate; single real estate complex; tank farm.

page 186-191

Abstract: The author analyzed the legal status of petrol stations and tank farms as real estate objects in the Russian civil law and the features of cadastre and state registration of rights to them under the current legislation; the possibility of using a new type of real estate objects – «single real estate complex» – for petrol stations and tank farms was analyzed.

Political Science

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Macro-Regional Identity in the Context of Information Security in the North Caucasus

Keywords: identity; information security; North Caucasus; ethnic conflicts.

page 192-196

Abstract: The paper discusses the formation of macro-regional identity in the North Caucasus. An attempt to define the role of identity in the information security and reduction in the number of ethno-political conflicts in the region was made.