

УДК 621.9.048.4

Kiselev M. G., Drozdov A. V., Habets V. L. Improving the Quality of Charging of the Lap Surface with a Knurl Roller Using Ultrasound

Experimental technological complex is presented designed based on desk lapping machine of SUN 3435 model and methods of conducting experimental studies enabling to charge with diamond flour grains the lap surface with the knurl roller while imparting it ultrasound vibrations. The methods developed enable to provide quantitative evaluation of abrasive ability and durability of diamond-bearing coating on laps made of various materials. It has been established that using ultrasound in the process of charging enables to significantly improve abrasive ability and durability of lap diamond-bearing coating and also reduce roughness of the surfaces of samples worked as compared with the same characteristics of coating formed with the use of conventional charging techniques. Additionally with the reduction of sample material hardness (in hardness units on the Mohs scale) the degree of ultrasound influence on roughness reduction decreases.

УДК 621.9

Pashkevich V. M., Mironova M. N. Accuracy Control for Machine Element Machining Based on the Use of Semantic Networks

The problems of providing machining accuracy of edge tools are considered. The approach based on the technologies of functional semantic networks is used. The possibility of applying functional semantic networks for controlling the accuracy of machine element machining by means of edge tools is considered. Intellectual system designed for applied problem solution is described. The structure of the system and the example of its application are shown.

УДК 548.24

Ostrikov O. M. Condition of Equilibrium for Non Thin Wedge Shaped Twin

The condition of equilibrium for non thin wedge shaped twin is obtained for such a scale level at which distribution of twinning dislocations on twin boundaries can be considered continuous. Interrelation between the functions describing twin boundary configuration is defined. This enabled to establish that the change in the configuration of one of the boundaries of an equilibrium twin results in change in the configuration of the other boundary so that the functions describing the configuration of the twin boundaries are of the same order.

УДК 621.646.8:621.398

Kryshneu Y. V., Harbuz V. M., Starastsenka V. A., Kuharenka S. M., Zaharanka L. A., Vinagradau E. M., Sakharouk A. U., Stalbou M. V., Lukashou V. M. Designing Wireless Transmission Channel for Controlling the Valve of Controllable In-Pipe Sealing Tool

During repair operation at oil pipelines it is sometimes necessary to shut off a pipeline with special device i.e. sealing gear in order to avoid pumping out a large amount of technological oil. Currently applied method and device for sealing is described. The design of an improved device i.e. controllable in-tube sealing tool is proposed. The design of the controllable in-pipe sealing tool is described, block schematic diagrams of ground based equipment for transmitting commands is presented and also the equipment mounted on the in-pipe tool to receive the commands from the surface, to control and monitor the condition of the sealing tool units. Since wire connection between the receiving device and the operating device is not possible it is proposed to arrange transmission channel using sound signal. A system of connection developed is described employing pseudo-random sequences of maximum length as signals. The method of improving the connection system efficiency taking into account specific features of transmission channel chosen is presented.

УДК 621.317

Karpov V. A., Kovalev A. V., Rostokina O. M. Analysis of Elementary Active Bridge Circuits for Resistive Transducers

There is a large number of measuring circuits for resistive transducers. Still it is not always clear which of the circuits known is preferable to use with a view to linearity of conversion of electric resistance variation into electric voltage. Additionally, resistive transducers sometimes consist of not one but several sensitive elements electric resistance of which changes depending on physical value both in-phase and differentially. Review and analysis of major measuring circuits for various resistive transducers has been conducted in terms of linearity of conversion of electric resistance variations into output voltage.

УДК 621.311

Kapanski A. A., Moroz D. R., Ficov A. S. Automatic Computation of Transient Processes in Electric Networks at Short Circuit

The algorithm proposed for the formation of the system of equations of the first order enables to produce the system of equations, including derivatives of currents of the whole circuit and to avoid transformation for replacing nonreactive currents by state variables of the circuit calculated.

УДК 621.311

Kolesnik Y. N., Kuzero A. M. Energy Evaluation of the Performance of Enterprises with Piecewise Continuous Metering Characteristics and On-Site Electric Power Sources in Market Conditions of Operating

The problem of existing methods of determining the position of step-down transformer substation is considered. Algorithms and program segments are created to calculate a step-down transformer substation position by existing methods and also by a conjugate gradient method. The study results are presented in numerical and graphic form. The evaluation of the efficiency of the conjugate gradient method is given.

УДК 330.552.338.45

Antonenko N. A. Gross Regional Product of Gomel Region: Specific Features of Formation and Ways of Increasing

The analysis of Gomel region development dynamics in 2005–2010 is presented. The nature of “gross regional product” category is considered. Comparative analysis of the dynamics of this index in Gomel region for the first half of the year 2011 is conducted. Evaluation of specific features of its formation is presented and the ways of its increasing are considered.

УДК 62-83-52

Karchevskaya E. N., Ageyeva O. V. The Analysis of Tourist Cluster of Gomel Region

Methods of evaluation of the richness of administrative areas with tourist resources are developed and approbated, evaluation of attractiveness and recreational value of natural tourist and recreation resources is conducted. Major components of regional tourist cluster are revealed such as servicing unit, attendant unit, administrative and financial-juridical unit. Their component structure is studied including economic entities in the sphere of tourism and auxiliary establishments. A. V. Mitrofanova methods of the formation of regional tourist cluster are approbated in accordance with which the stage of development of the regional tourist cluster of Gomel region is defined and also the factors limiting its development (economic, geographic, institutional, infrastructural) are identified.

УДК 339.138:664.8

Pashkova E. S., Van Yaotian. Import Baby Food Substitution

The problem of import baby food substitution in the Republic of Belarus is considered. The authors mention some problems arising during substitution of import. The solution pro-

posed by the authors will contribute to efficient substitution of import enabling domestic processing enterprises and agrarian enterprises to sustainably develop.

The problem of determining baby food market capacity in the Republic of Belarus is considered. The data is presented on recommendations on the time of additional feeding start and additional food standards and also on baby mineral requirements during the day. Approximate capacity of baby food market is calculated. Aggressive marketing and branding of baby food is considered. The examples of mobile marketing are provided. It is suggested to apply cluster approach in the Republic of Belarus. Advantages and qualities of this approach are analyzed.

УДК 339.13:631.3

Tilichenko P. V., Drozd S. S. Secondary Market of Farming Equipment as a Factor of Improving Export Potential of the Country

The secondary market of farming equipment of the Republic of Belarus is considered. It is shown that it is not widely spread in agro-industrial complex. It has been revealed that non-availability of scientific and methodic basis for the formation and developing a civilized market of used farming equipment reduces export potential of the country.

Measures are proposed on the formation and development of secondary market of farming equipment; the methods for calculating an assessed value during redemption of used equipment is proposed; the pattern of new equipment sale is worked out with redemption of equipment after its being in operation and its further re-sale after restoration. The pattern proposed has been tested on farming equipment market in Argentina.

УДК 339.92

Malgina T. A., Kovalenko S. A. Evolution of Economic Systems and Present-Day Trends

The world economy in the format of economic system changed after financial crisis. What are new trends? How will the economy of the Republic of Belarus fit in the present-day dynamically changing reality? The solution of these problems will define the configuration of possibilities and challenges for Belarus economy and its business. Revealing difficulties and prospects for Belarus in whole is possible only based on defining the state of the world economy as a large economic system.

УДК 339.33:658.7

Shkabarina A. O. Logistisation of Trade and Technological Processes in Wholesale Trade

Logistisation is considered as a major factor providing competitiveness of products on consumer market due to significant reduction of the costs of goods delivery to the consumer on one hand and enhancement of the prestige of the country on the international market on the other hand. Introduction of logistisation and setting up logistisation center should be provided based on profound analysis of the potential available in an industrial sector or in the region. The methods proposed differ from conventional ones in which organization resources are considered to be divided into fixed and circulating assets. In the process of logistisation the most important resource is information and the level of professional qualification of the staff. The author's methods of the analysis of wholesale organization performance are presented in the paper. For the first time the analysis of resource potential is conducted with separation of material, labor, information and cash flows. The system of estimated figures of efficiency of the organization logistic potential use is proposed.