
ABSTRACTS

TECHNICAL SCIENCES

Aliieva L. I., Ogorodnikov V. A., Grushko A. V. The evaluation of technological deformability in metal forming by effect of stress state schemes // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

The analysis of phenomenological fracture criteria. It is shown that the deformation criteria based on the scalar damage accumulation, yield the same results of the calculation of limit strains for cases where the state of stress indicators remain constant throughout the deformation process. In cases where the deformation paths are functions on the maximum strain affect the first and second derivatives of the indicators of stress state. It is shown that the second derivative of the stress state index for various steel grades significantly affects the value of the coefficient that takes into account the history of deformation. It is shown that the diagram of plasticity is not the same for different states of stress. On the plasticity of metals in the bulk state of stress affects the third invariant of the stress tensor. The technique of charting plasticity in a volumetric stress state with known plasticity chart constructed in terms of linear and plane stress.

Altukhov A. V., Tarasov A. F., Baitsar V. A. Finite element simulation of the stamping process workpieces U-implants // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Designing the implant geometric model of Coflex spine spacer type and forgings for its production was performed. Forging form allows applying an SPD stamping process, which eliminates the need for pre-treatment of the workpiece material before punching. Analysis of options for implementing the transition process of plastic deformation using simulation in CAE-systems allowed us to determine the sequence of deformation stages and tool geometry, providing required metal flow. Cumulative degree of deformation during the billet forming is 3.3–7, which provides the necessary change in the structure and strength characteristics of the forging (at 400°C temperature).

Andreev A. A., Korchak E. S. Development of a technique of HIP-machine working containers assembling // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Constructive and operating peculiarities of industry HIP-machine containers are revealed. Special consideration is given to its stressed-and-deformed state investigation. Tensions occurring under assembling of the working container inner and middle bushes with interference fit are analyzed. Numerical dependences of tensions in assembled parts as a function of maximum and minimum interference for different types of fits are established. Succession of the main stages of container assembling is set out, assembled container working drawing and its loading scheme are given. Practical recommendations of industry HIP-machine containers of rational construction designing and making of its winding are delivered.

Gavriukov O. V. The Speed and Acceleration Determination of the Mobile Station during the Conveyance Length Change of the Operating Tunneling Conveyor // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

There has been represented the research concerning the theoretical dependences of the speed and acceleration determination of the mobile station during the non-uniform acceleration of the conveyance length change of the operating tunneling conveyor. There has been determined that the speed and acceleration changes during the non-uniform acceleration of the conveyance length change are described with the exponential graphs and depend on electric motor, gear reducer, conveyor parameters as well as the present loading and operating conditions.

Didenko V. O., Bondarenko O. F., Polyeno O. N. Movement reference signal generation in control system of continuous casting machine mold oscillation mechanism // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Mold is a main functional element of continuous casting machine (CCM). The accuracy of maintaining given trajectory of mold movement, which is largely determined by the accuracy of forming reference signal, is very important. Therefore, the development of a method of forming reference signal which provides the necessary accuracy is a relevant task. Use of spectral analysis and root-mean-square error of signal generation, error comparison with the manufacturing tolerance made it possible to develop proposed method. It is shown that the method of forming reference signal of CCM mold movement provides high accuracy of movement path reproduction and smooth change of motion acceleration. As of its simplicity and higher accuracy comparing to prototype, it can be used as a law of motion generation in the control system of CCM mold oscillation mechanism, and for modeling such systems.

Kotlyar S. N. Optimization of chemical composition of alloys AK9M2 // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Determined that the effect of copper, magnesium and manganese to the level of mechanical properties of the alloy in the molten state AK9M2 is nonlinear. It is not only the total content of these components in the alloy, and their relationship. Increasing the content of copper, magnesium or manganese in the alloy allows AK9M2 improve its mechanical properties under certain proportions of two other components.

Application of the method in the analysis of multi-criteria optimization model enabled the optimal ratio of copper, magnesium and manganese alloy AK9M2.

Maiboroda V. S., Tkachuk I. V. Disturbances in the magneto-abrasive tool at the machining of long-length workpieces in the ring-type working area // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

The peculiarities of formation and reformation of the compacted zone before moving workpiece in the ring-type working area at magneto-abrasive machining (MAM) of the workpieces with a diameter of 4, 8, 16 mm by different types of powders at different value of magnetic induction were investigated. An exponential dependence, which describes the behavior of the disturbance front in the magneto-abrasive tool (MAT) was determined. For equiaxed fragmentation particles the size of the disturbance front in the MAT before moving workpiece increases with increasing particles size, which is connected with a greater ability to be magnetized. It is shown, that an important influence on the recovery mechanism of the structures of MAT have the spindle-shaped formations and their ability to stretch during the MAM and to form a compacted zone from the powder before moving workpiece without causing deformation and destruction of quasi-stable cone-shaped formations located by their bases on surface of the pole pieces, which form ring-type working area.

Markova M. A., Rozov Y. G., Mkrtychyan E. A., Rizak P. I. Strain gradient during producing of hollow workpieces using a severe plastic deformation // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

In this paper the stress-strain state at producing of hollow workpieces using schemes with a severe plastic deformation was defined. A new process of deformation hollow forgings concave dies with bevels was proposed. Simulation of the forging process using finite element method has allowed to establish the mechanism of forming the workpiece and closing of the hollow for new technologies. It was found the general rule for the investigated schemes forging is that when broaching hollow workpieces with a hole diameter $d_0 / D = 0,3$ occurs closing of the hole at reduction of more than 40 %. Intensity closing of the holes is the same for different reductions for regular size ratios of the workpiece. For the relative hole of diameter workpiece $d_0 / D = 0,3$ the rational for uniform strain distribution and less degree of the closing is angle $\alpha = 90^\circ$ at an angle of bevel $\beta = 20^\circ$. The hole of the workpiece closing at reduction more than 40 %, it's the using of scheme forging workpieces with hollow mandrel at a thick wall ($d_0 / D = 0,3$).

Vinnitskaya Y. A. Knowledge representation and acquisition of new knowledge based on the ontological approach: SWRL technology review // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

In this research, the necessity and possibility of merging ontologies and rules to solve the problems of knowledge representation and acquisition of new knowledge based on the ontological approach. Shows a diagram of combining OWL DL ontologies and rules SWRL. Describes the basic features of the use of technology SWRL, and discusses the technology components (atoms). The analysis of atomic technology SWRL, isolated and examined their basic characteristics. On the example described the possibility of excluding the main characteristics that distinguish technology SWRL from DLP, such as conjunctive sequence descriptions of classes, equality and inequality. Defined platform implementation technologies considered.

Samuylov V. O., Pivovarova A. G. Mathematical modeling of decision support systems for technological preparation of production of steel structures in the workshop // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Reviewed and analyzed the essence of technological preparation of production of steel structures in the workshop. Various algorithms for decision making in fuzzy environment for automation of technological preparation of production of steel structures in the workshop. The mathematical modeling of decision support systems for technological preparation of production of steel structures in the workshop. Developed and described mathematical model for decision support system for technological preparation of production of steel structures in the workshop. A mathematical model of the Bellman-Zadeh scheme of decision-making in fuzzy environment to automate the process of technological preparation of production of steel structures in the workshop. The advantages of the proposed mathematical model of Bellman-Zadeh scheme of decision-making in fuzzy environment. Promising research directions given in the article.

Trembach B. O., Trembach I. O. The weld imperfections influence upon the weld metal strength of the single-pass butt weld depending on the chosen quality level of ISO 5817 // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

This article shows the fatigue-strength (weld imperfections) influence upon the metal stress level depending on the chosen quality level of ISO 5817. The stress definition was realized with a Solid Works software product using the finite element method. Increasing the metal thickness the fatigue-strength sensibility increases either. And reducing the quality level, value of stress grows. It is ascertained that such defects as undercuts, root concavity and sagging provoke the most intensive fatigue-strength.

Fedot'yev A. M., Fedot'yeva L. P., Korol S. S. Principles of creating XY milling heads a new generation // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

When large masses of elements of machines with increasing speed of movement appear significant inertial loads that affect the dynamic characteristics of the machine and the surface quality of parts. When using traditional materials cannot reduce the weight of the elements due to the fact that the decline in the rigidity and vibration resistance. The solution to this problem is the manufacture of machine elements made of composite materials.

In this paper we propose the use of carbon fiber body elements biaxial milling heads, which provides greater rigidity to the body at minor weight, and reach a top speed of movement of the cutting tool. The calculations confirming the efficiency of the proposed structure, showing the feasibility of using composite materials for housings of milling heads.

The technology of manufacture of the elements of the case a milling head having concave surfaces, complicating the extraction of the shape of the finished composite product.

Shelekhova O. G. thermal state of the induction motor in intermittent duty with electric braking when the supply voltage unbalance // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

The refusal of the asynchronous motor (AM) due to the symmetry breaking of the supply voltage causes material losses associated with the need for its replacement, and costs from disrupting the production process can exceed its cost. The largest share of failures AM associated with overheating of windings. Prediction of the thermal state of AM allows you to exclude thermal overload heavy-duty, one of which is intermittent mode with electric braking. The results allowed us to evaluate the influence of the supply voltage asymmetry on the thermal condition AM in intermittent duty with electric braking S5 for a wide class of engines.

Javtushenko A. V. Synthesis-bar slider-crank mechanism on the ratio of the average velocity // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Considered the questions of synthesis crank-slider mechanism for a given ratio of average speed. The use of mechanisms with negative dezakeela provides increase the allowed number of moves press, i.e. its performance to 8–10 %. Synthesis mechanism is carried out at different variants of the original data. In the simplest case, the synthesis mechanism is made for a given ratio of a rod or degree of dezakeela. The main attention is paid to possible options of the synthesis problem for a given maximum angle pressure at idle and the problem of synthesis for a given angle of pressure at the beginning of the stroke. For the decision of problems of synthesis while meeting a given rate of average speed and minimum values of the angles pressure analytical dependences.

ECONOMIC SCIENCES

Berezshnaya E. V., Chepel J. A., Martynovskaya E. V. Methodological aspects of the feasibility analysis of the effectiveness of options choice of engineering solutions // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Development of the project of the welding process (assembly, assembly, welding, surfacing), as any technical problem is characterized with multivariance possible solutions. The most suitable option from the cart-sible in practice is selected based on the feasibility of comparison. Therefore, the technical evaluation compared alternatives production technology always fill their economic evaluation. In the article developed a method for selecting the optimal variant of engineering solutions at the stage of feasibility study. Described sequence analysis implemented the appropriate program for the PC. As a result of calculations performed interactively obtain the original data table, the table on articles technological cost of each option, the table of results and graphical interpretation compare options.

Bolotina E. V., Golubtsova D. Yu. Institutionalization of the transformational economy and policy // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

It is possible to consider the analysis of institutional structure of economy of Ukraine, and also will familiarize with essence and nature of institutional changes in her from positions of institutional approach. Institutionalizm extends the analysis property, to include, in addition to private property, collective and State-owned property by comparing levels of efficiency. The essence analyzes the nature of the institutionalization of the economy of Ukraine and integration into economic environment of globalization world. The peculiarities of the modern economy of the Ukraine dictate the positive arguments of the collaboration with EU. European integration a. EU member's is strategy aim of Ukraine. The main social and economic problems of institutionalization are defined. The ways are offered of this problems solution.

Borova A. O. Modelling enterprise competitiveness using fuzzy logic // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Competitiveness of the enterprise is a general indicator which includes a number of influencing factors. In context of the dynamic development of economy and crisis factor, an enterprise needs to modify its competitive strategy every day, but it takes a lot of work effort, therefore, the use of fuzzy-set simulations becomes relevant. In this paper both model of enterprise competitiveness evaluation based on fuzzy logic and an intelligent information system based on this model are being developed. The system of factors that affect the competitiveness of enterprise is being defined and a software implementation of the constructed model is being executed. Based on the proposed method it is possible to conduct the mediated company valuation, which is not only a common indicator of the success of the enterprise, but also important in terms of attracting investment.

Gridasov V. M. Forming of favourable investment climate of regions of east of Ukraine and estimation of their investment potential // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

In material of the article basic factors are considered influencing on forming of favourable investment climate on the example of east regions of Ukraine. Investment potential of regions is analysed. The results of estimation of influence of basic factors are presented on efficiency of investment activity of potential investors and investment potential of regions on the whole. The key trends of investment of facilities potential investors are distinguished in intercommunication with a current economic, financial and political situation in regions. Worked out suggestion on the increase of investment attractiveness of the investigated territories.

Yeletskih S. J. Controlling mechanism development of the enterprise and its evolutionary forms // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

In the articles considered the existent going of domestic and foreign scientists-economists is analysed near interpretation cyri concepts "mechanism of management steady development"; educed intercommunication of this concept

with such concepts as: "mechanism", "economic mechanism", "economic mechanism of management", "economic mechanism of management development". The place mechanism for managing enterprise development in the economic mechanism of enterprise management and its evolutionary form, develop an internal structure of the mechanism of financial management for sustainable development of the company.

Yeletskikh S. J., Petrischeva K. G. Investigation of the structure of the deposit portfolio of banks in Ukraine and opportunities to expand the deposit base // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

The author considers the most important operations in bank activity for formation of bank resources – deposit operations. Also the author offers classification of deposit operation, consider factors, which influence on the possibility of mobilization resources by the banks, investigate dynamics and Modern condition of deposit market in Ukraine. Based identify the strengths and weaknesses of the banking system proposed measures to improve the quality of deposit operations. Factors that influence the location of depositors, structure and dynamics of deposits, which is the starting point increase efficiency of the bank. The analysis of the value of shares of client funds and their dynamics, to determine areas to attract new sources of replenishment of bank resources. Investigation of factors and analysis of structure and dynamics of juridical and natural persons deposits gives the opportunity to offer new deposit programs.

Zhukov S. A. The transformation of the national economy based on innovation and marketing mechanisms in the industrial sector // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

The article investigates the transformation processes in the national economy in general and the industrial sector in particular through the development and marketing of innovative mechanisms. It was found that the decisive role in this belongs to the state and the government, in particular the state innovation policy. It is proved that the innovative development of the industrial sector is the basis of absence of alternatives and increases the efficiency of the Ukrainian economy. Particular attention is paid to the further development and functioning of innovation infrastructure and national innovation system. It was found that the use of marketing mechanisms is an important factor in increasing the efficiency of the industrial sector enterprises, in particular its innovation. The measures proposed to achieve efficient transformation of the national economy and the domestic industrial sector on the basis of the formation and the efficient use of the national innovation system, improve innovation and marketing support.

Mykhaylychenko N. M. Controlling in addressing the coordination of planning and regulation of complex dynamic systems // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

In the article the problem of coordinating the planning and control of complex dynamic systems in microeconomics. Enterprise – is a complex dynamic economic system, the degree of complexity which determines the degree of closeness of the connection between different levels of government and between units of the same level, and this relationship is to provide a system of controlling. Therefore, the question of controlling as an effective tool for solving problems coordinating the planning and control of complex dynamic systems is quite relevant. The developed system requirements, prerequisites, taking into account the systemic nature of the company, gives the opportunity to build an effective system for controlling planning and management in the enterprise.

Oleshko T. I., Degtiarenko V. I. Problems of foreign investment into Ukraine in the period of an economic crisis // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

The Ukrainian economy is at a development stage therefore the national market, despite all instability of an economic situation in the country in recent years, remains interesting to the foreign investor. The analysis of indicators for 2014 showed that, despite a difficult political and economic situation, the countries of the world, priority of which are Cyprus, Germany and the Netherlands, continue cooperation with Ukraine. It serves as incentive for maintenance of image of the attractive country for investment. For this purpose it is necessary to resolve a number of urgent issues soon, military operations in the east of the country and corruption are basic of which. The variety of reasons which have to provide development of investment activity in 2015–2016 is also presented.

Podgora E. A., Shimko E. V., Getman M. A. Evaluation of the use of mathematical modeling in the analysis and forecasting of costs of production // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

For regression analysis in relation to the cost of production considered two multifactor models – linear and sedate (Cobb-Dougllass model), which are most often used in the construction of multivariate regression models for economic processes. The selected optimal model the minimum sum of squared residuals. Using the optimal model, the forecast and calculated elasticities that determine the impact of changes in selected factors on the total cost of production. The difference between planned spending and calculated using regression analysis, 0,2 % downward costs.

Pochotna A. O. Developing an algorithm of choice the corporate information systems using fuzzy logic // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

The competitiveness of corporate information systems depends on several factors, expert assessment which made it possible to analyze the market and identify market sectors each of the systems. It was formed model evaluation of the company by means of fuzzy logic by multi-objective optimization data. Developed and implemented a universal algorithm of choice for enterprise information system using expert data. Taking into account the large number of aggregated factors and improvement of research by introducing a new factor made it possible to more accurately calculate the competitiveness of corporate information systems presented on the market today. Analysis of the results gives a complete picture of the distribution market between the major players.

Proskura V. F. Strategic principles of the resource providing of economic security and steady development of region // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

It is certain in the article, that strategy of the resource providing is component part of strategic plan of providing of economic security and steady development of region; the ingredients of strategy, principles of their forming and task, that must be decided in the process of development of strategy, are enumerated. Strategy of the resource providing of development of regions is associate with the policy of economic transformations. In the folded situation realization of active measures is needed from the side of regional organs of management for providing of transformation of structure of economy of regions. Thus, forming and realization of strategy of the resource providing envisages development of strategic management that must provide the protracted viability of the regional system.

Turlakova S. S., Varlamova Y. N. Object modeling decision support system for the distribution of the budget of the city // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Held object modeling decision support system for the distribution of the budget of the city by constructing diagrams using the Unified Modeling Language UML. The basic stages of the system and its processes and functions, and their sequence. All aspects of the structure and behavior of a decision support system are presented in the form of a use-case diagram, class diagrams, collaboration diagrams, sequence diagrams, state diagrams, charts and diagrams of components deployment. Each of the diagrams presented in graphical form and provides information about its purpose and representation of the element. Package diagrams presented in succession as documentation for the decision support system for the distribution of budget funds for use by the developer. The urgency of a software implementation of decision support system for the distribution of the budget of the city in Delphi based on the developed structures in the form of the object model.

Shevchenko N. Yu., Horeslavets A. N., Nevdohin M. V. Development of technology of estimation of investments risk and forming of optimal structure of investment brief-case // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

It is marked in the article, that one of the most essential factors of development of enterprise are investments, id est long-term investments of capital for creation of new or perfection and modernisation of operating productive vehicle with the purpose of receipt of income. Importance of the real investing is marked. The conceptual going is presented near an optimal portfolio of the real investing construction. The criteria of optimality are chosen, limitations are formed as non-rigid inequalities. The mathematical model of account of risk of investing is offered on the basis of simulation technique. As a result of application of simulation model the interval values of price, variable charges and production volume are got. Realization of algorithm is approved on a model example for a printing-house enterprise.

Shevchenko N. Yu., Zdereva H. S. Pre-prognosis analysis by the methods of fractal geometry and prognostication of indicators of activity of financial institution // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

It is marked that further development is required by the mechanisms of prognostication of activity of financial organizations on the basis of pre-prognosis analysis of temporal rows. Classification over of basic indicators of activity of banks is brought: profits on credit operations, profits on deposit operations, indexes on bringing in and service of customers. The conceptual going is presented near prognostication of economic indicators of activity of bank. A mathematical multistage model of forming of prognosis is offered taking into account a pre-prognosis analysis and estimation of exactness of prognosis model. As a method of pre-prognosis analysis the method based on determination of standard deviation for the different degrees of averaging is used. On the size of Hurst parameter formed conclusion about properties of the investigated temporal row, namely whether a row is subject to prognostication.

Shimko E. V., Podgora E. A. Prospects for the use of individual assessment of the labor specialists in the formation of their remuneration // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

A new system of remuneration specialists, together with an estimate assuming the level of qualification according to the standard input of additional factors, taking into account the evaluation of the quality of work. Algorithm payroll specialist is built on a mathematical model of wage and summarizes a comprehensive assessment of the labor contribution to the work of professional production unit. A comparative evaluation of the existing qualifying payment systems within the CIS „, discussed advantages and disadvantages of the most modern payment "technical ladder" specialists. It is concluded that the proposed new system of remuneration specialists suitable only in cases where the skill requirements are very high and are constantly changing.

Yaschishina Y. N. The influence of social environment on the development of students' mental health // Scientific Herald of the DSEA. – 2015. – № 1 (16E).

Describes the results of a study the impact of micro-social environment on development of mental health of college students. Given author's profile determines the level of satisfaction of the student youth with micro-social environment. According to the study identified a group of important social factors at the microenvironment level, which influence on development of mental health of college students: satisfaction with the surrounding microenvironment (student group, family, friends, fellows); the presence of favorable inner circle (the feeling of support, trust, comfort), mental family health (emotional comfort, consistency and support of family, a sense of security). Established relationship of social and personal factors and their impact on the development of mental health of college students.