

## ABSTRACTS

## Section of «Metallurgy. Welding»

UDC 669.162 Sigarev E., Bayduzh U., Chubin K., Gurzhiy D. RESOURCE-SAVING EFFECT OF THE ROTATING IMMERSION LANCE. For the proposed process route "blast furnace - BOF" PAO "AMKR" designed resource and energy efficiency and changes in the conditions of the domain with the introduction of converter melting ladle desulphurization of pig iron using a submersible rotating lance. The expected reduction in energy consumption compared with the standard technology of steel production is 0,973 GJ/t steel.

*Keywords:* ladle, desulfurization, rotating lance, pig iron, magnesium, lime, mixing.

UDC 669.162 Sigarev E., Nedbaylo N., Sigarev N., Malashonok S. THE USE OF MAGNESIUM IN THE LADLE REFINING COMPLEX SCHEME MELT. A thermodynamic analysis of the variant complex scheme refining molten pig iron with simultaneous removal of silicon and sulfur injection of powdered lime and granulated magnesium through two submerged lance flows in a neutral or oxidizing gases, respectively, in terms of input aluminum during processing. It was shown that blocking the dissolved aluminum to the surface of the mass transfer of oxygen bubbles magnesium reduces the volume concentration of dissolved oxygen, resulting in reduction of its adsorption on the interface "melt - magnesium bubble" and improve the utilization of magnesium to sulfur.

*Keywords:* complex refining, submerged lance, pig iron, magnesium, lime, aluminum.

UDC 669.18 Sigarev N., Soroka Y., Plakuschiy D. PHYSICAL MODELING OF HYDRODYNAMICS OF LIQUID METAL IN THE FOUNDRY LADLE DURING TOP BLOWING OF A BATH WITH THE USE OF FILTERING AND SCATTERING PARTITION. The article provides the results of physical modeling of hydrodynamics of metal in the foundry ladle during top blowing of a bath with the use of filtering and scattering partition. The quantitative relationships and the directions of flow velocities of the metal have been established depending on the location and design features of filtering and scattering partition in ladle capacity for a given intensity of the blowing gas

*Keywords:* modeling, filter, partition, blowing gas, hydrodynamics.

UDC 669.162 Kryachko G., Masterovenko O. PECULIARITIES OF COKE ZONE FORMATION IN THE BLAST FURNACES. Based on the analysis and data compilation about the raw-material column structure of the cooled blast furnace it has been shown that the blast furnace volume determines neither the shape of the coke zone nor the shape of the cohesive zone. The observational data suggest that the more important factors for the formation of such zones in the raw-material column are the raw materials and operating conditions, and the existing technology of the furnace operation. The principles of coke and cohesion zones formation at the furnaces of different volume are summarised.

*Keywords:* blast furnace, raw-materials column, coke and cohesion zones, principles of formation.

UDC 669.162 Kryachko G., Barsukov E., Masterovenko E., Sedykh A. QUANTITATIVE EVALUATION OF CHARGE FORMATIONS IN THE MELTING STOCK COLUMN OF THE BLAST FURNACES. Using the data about column materials structure of the three cooled blast furnace at their operation, the coke packing volumes of the size of 19,4-27,8% of working volume are defined. The geometric volumes of deadman, formed in the blast furnaces of 5000 m<sup>3</sup> and 5500 m<sup>3</sup> in volume, under irregular operation, caused by de-

sign and operational factors, are determined. The minimum amount of deadman is observed in BF № 5 of Cherepovets plant (2,6% of the working volume of the furnace), maximum – at the BF № 9 of «Kryvorizhstal» (12,8% of working volume) – with the use of top-charging device of bell-type.

*Keywords:* coke packing, blast furnace, deadman, volume.

UDC 622.7:622.785 Rudenko M., Zyuz' V., Rudenko R. CONTROL OF GRANULOMETRIC COMPOSITION AND STRENGTH OF THE GRANULES OF THE GRANULAR SINTER CHARGE BY THE USE OF AQUEOUS SOLUTIONS OF SURFACTANTS. Considered control grading and priestly in granulation of sinter charge by changing the wetting properties of the liquid. The analysis of the influence of flow, regimes of moisture on the quality indices. The proposed technology of preparation of sinter charge with different qualitative composition of the charge.

*Keywords:* mixture, pelletizing, particle size distribution, strength, permeability, quality.

UDC 621.791.92:669.018.25 Peremitko V., Kolomoyets I., Borschenko A. DESIGNING OF THE CATERPILLAR TRACK'S DETAILS' REPAIRING TECHNOLOGY CONSIDERING CONDITIONS OF FOLLOWING EXPLOITATIONS. There are results of welded models' abrasion test with adding to contact zone abrasive of different fractions. Composition and properties of welded metal had been changing on account of the wire of different marks and percentage of the agglomerated gumboil mixed with the melted one. Compositions of metal recommended for extension of metal's service were identified. Adaptive method of hardwearing groups' applying was offered.

*Keywords:* repairing welding, wear resistance, abrasive fractions, optimal composition of metals.

### **Section of «Rolling production»**

UDC 621.771.01 Maksimenko O., Izmailova M., Loboyko D., Studentsova I. A TWO-TIER MODEL OF FRICTION IN THE DEFORMATION ZONE AT ROLLING. The paper proposes a new two-tier model of friction for determining shear stresses in the deformation zone. Developed a method of for determining of these stresses over the cross section of the deformation zone. Shows the correspondence between the calculated and experimental values of the mean pressure, outstripping and the coefficient of friction, as well as diagrams of the specific friction forces.

*Keywords:* model of friction, shear stresses, longitudinal stability, the deformation zone.

UDC 621.771.01 Maksimenko O., Izmailova M., Loboyko D., Kuzmin E. ASSESSMENT METHODOLOGY OF LONGITUDINAL STABILITY STRIP IN DEFORMATION ZONE WHEN ROLLING WITH A TENSION. In the article developed a new method of estimating longitudinal stability strip in rollers at rolling with tension. On the basis of the developed technique, according to experimental data was analyzed the influence of rear tension at the longitudinal stability of the process. Which showed that from the increase rear tension resultant absolute value longitudinal force decreases, and hence the rolling sustainability is reduced.

*Keywords:* tension of the, longitudinal stability, the deformation zone.

UDC 621.771.01 Yershov S., Geymur K., Kravchenko K., Marchenko K. RESEARCH OF WEARING MILL ROLLS DURING ROLLING THE ROUND ROLLED IN OVAL CALIBERS. In the work presents the research results of wear rolls during rolling the round rolled in oval calibers on modern rolling mill. The calculation was performed using the

software package that was developed at the Department of OMD DSTU. In the article the criterion which takes into account the pressure of metal on rolls, sliding speed, length contact metal with rollers and enables qualitatively predict the amount of wear on the width caliber.

*Keywords:* wear, roll, caliber, rolling mill, metal flow.

UDC 621.771.01 Yershov S., Kravchenko K., Kocherga O. DEFORMATION'S STUDY OF METAL ROLLING CHANNEL IN CONDITIONS OF THE SECTION ROLLING LINE OF 400/200 DMKD. The article contain the results of theoretical research deformed state of metal at rolling channels №8 in conditions of smallsection-wired rolling mill 400/200 PJSC "DMK" in the cage №9. For performance of calculation used software package ESV-Deform, developed at the Department of OMT DSTU. The analysis of the data allowed to get qualitative picture of metal deformation process and determine the strain-state parameters. The data can be used to improve the existing calibration of rolls.

*Keywords:* channel, launched calibration, rolling mill, degree of deformation, metal flow.

### **Section of «Engineering. Mechanics»**

UDC 621.941.014.8 Davidchik A., Levchuk A., Zatsarenko V. RESEARCH of OPTIMUM RATIOS of DESIGN DATA of CRUSHERS WITH the KNIFE of the SEMIELLIPTICAL FORM. The developed crusher design with a semielliptical knife provides effective crushing of friable materials, including steel shaving, due to self-control of fascinating ability of knives. The elliptic directing curve of a knife provides the acceptable coordination of angular steps at installation of knives on a shaft.

*Keywords:* crusher, self-regulating knives, shaving.

UDC 621.867.427 Chasov D.P. JUSTIFICATION FOR EFFECTIVE FILLING CHUTE SCREW CONVEYORS WITH EXTRA SHOVELS. The article discusses the improved performance consumption process material transportation screw conveyor with extra blades using screw design upgrades. We present analytical and experimental data. Proved effective rate of filling the trough screw conveyor. The possible applications of the results of research.

*Keywords:* extra blades, the effective occupancy of the gutter.

UDC 669.168.047/7-911.6 Chernyshov A., Chuhno S., Trikilo A., Dolqopolov I., Turchin V., Yatsyna V. EXPERIMENTAL RESEARCH OF DRYING KINETICS OF METAL CUTTING PACKS. The research results of drying kinetics of metal cutting packs have been shown. Drying rate and period at specified conditions have been defined. Treatment of results of researches was executed the methods of mathematical statistics.

*Keywords:* metal cutting, pack, drying, drying rate, moisture content.

UDC 664.61 Yatsuk A. FLOW REGIME OF THE DOUGH COMPOSITION WHEN THE FLUID VELOCITY EXCEED IN LUBRICATING LAYER SPEED OF EXTRUSION. We considered the problem of movement in the channel with the use of the hydrodynamic greasing the mass of dough. Defined by the equation of the velocity distribution of the lubricating fluid and system of equations the mass flow rate of dough and volumetric flow of lubricating fluid, during the regime when the average velocity fluid in the lubricating layer higher than the average rate of extrusion material dough.

*Keywords:* hydrodynamic greasing, velocity distribution, mass flow rate, volume flow, dough.

UDC 539.3 Telipko L. THE STRESS-STRAIN STATE OF THE COMPOSITE CYLINDRICAL BODIES UNDER DYNAMIC LOADING. The problem of stress-strain state of a layered cylinder is in a solid cage when loading it to the ends of a uniformly distributed load varying harmonically. Solution of the Lamé equations that describe the dynamic equilibrium of each layer is carried out by giving a discrete decision variable in the course of the radial difference form.

*Keywords:* layered cylinder, the stress-strain state, and differential equations.

### **Section of «Radioelectronics»**

UDC 621.376 Ryazancev O., Kulik M. COMPARATIVE ANALYSIS OF THE SPECTRAL EFFICIENCY OF THE COMBINED AM-FM WITH ZERO CROSSING. The spectral efficiency of the combined AM-FM transition through zero had been analyzed. It is shown that the gain compared to the conventional AM at least negligible, but ensures high reliability of clock recovery.

*Keywords:* spectral efficiency, beats, combined AM-FM transition through zero, the relaxation time, the quality factor, symbol rate.

UDC 621.396.674.3 Marchenko S., Pass O., Sianov O. OPTIMIZATION OF AIR FILLED MICROSTRIP ANTENNA ARRAY. Modeling of microstrip antenna array is presented in this paper. Aim of this work was modeling of simple and inexpensive antenna array to make tract relay wireless communication system at 2.4-2.483 GHz (IEEE 802.11) in urban areas. Application of the analytical calculation methods applied to design antenna array, are necessary to clarify the geometrical dimensions of the array using optimization based on numerical methods. As a result, process modeling and optimization was obtained antenna 2x2 elements with using fixing pins.

*Keywords:* microstrip antenna array, directional antennas, analytical methods, transmission line model, method of finite elements.

UDC 621.375.4 Koyda M., Marchenko S., Gnatyuk M., Sjanov A. THE INVESTIGATION OF THE OFFSET VOLTAGE STABILIZATION CIRCUIT FOR TRANSISTORS IN OUTPUT STAGES OF LINEAR POWER AMPLIFIERS. The paper considers the design of the high frequency linear power amplifier with the offset voltage stabilization circuit. As active components the power MOSFETs are used. The simulation results confirm the efficiency of the proposed circuit for stabilization of a transistor operation mode and improvement of amplifier linearity.

*Keywords:* intermodulation distortions, wideband amplifiers, MOSFET, software defined radio.

UDC 006.91 Ignatkin V., Lytvynenko V. PRINCIPLES OF CHOICE CLASS ACCURACY OF MEASUREMENT EQUIPMENT TO THE QUALITY CONTROL OF RADIOELECTRONIC EQUIPMENT. In the paper the problem of calculating error control 1 and 2-the second kind, selecting precision class of measurement devices (MD) with known accuracy parameters of the process. On the basis of research evaluation algorithms permissible error MD and MD model selection.

*Keywords:* measuring equipment, measurement error, control, accuracy.

UDC 681.2 Ignatkin V., Lytvynenko V. EVALUATION AND ANALYSIS OF RELIABILITY DEPENDENCE OF THE RADIO-ELECTRONIC SYSTEMS IN SERVICE. In work the method of calculation of the reliability of radio-electronic systems (RES). The study

allowed to select and base basic comprehensive reliability RES solve the problem and study the impact of frequency control reliability.

*Keywords:* reliability, hidden and obvious failure, complex reliability RES.

UDC 621.346 Ivanchenko A., Gomilko I., Tonkoshkur Yu., Ignatkin V. DIGITAL MEASURING AND DATA TRANSFERRING SYSTEM FOR CONTROL OF MATERIALS BY ISOTHERMAL DEPOLARIZATION CURRENT SPECTROSCOPY. The variant of the digital system is described in this paper. This system allows to receive and transmit large data arrays to the computer devices. Thus, it allows to significant increase in the accuracy of the kinetics measurement of the depolarization currents. The testing results of the system showed its applicability for research and control of materials by isothermal depolarization current spectroscopy.

*Keywords:* digital measurement system, microcontroller, method of isothermal depolarization current spectroscopy.

### **Section of «Electromechanics. Electrical engineering»**

UDC 621.313.323 Kolychev S. FEATURES STARTING MODE CONTACTLESS COMBINED SYNCHRONOUS MOTORS. In a large non-contact synchronous motor having a coincident coil on the stator (BSM) to obtain start-up with the required performance characteristics proposed include excitation coil instead of a permanent active disk induction resistance (IR). Presented technique and results of calculation of the asynchronous characteristic of BSM with IR.

*Keywords:* contactless synchronous motor, induction resistance.

UDC 621:313 Kachura A., Sjanov A., Moroz L. MATHEMATICAL MODELING OF SWITCHED RELUCTANCE MOTORS WITH REDUCED TORQUE OF INERTIA. For the study of electric machines is widely spread finite element method (FEM). The use of the FEM allows us to analyze the distribution of electromagnetic field in the electrical objects of arbitrary configurations based on various factors. Based on FEM are studied in the work of Electromechanical and electromagnetic parameters of serial SRM with a modified rotor which analysis allows to justify the constructive modification, aimed at reducing thermal loads and improving the dynamic properties of the engine.

*Keywords:* magnetic vector potential, finite element method, switched reluctance motor.

UDC 62-83 Derets A., Sadovoy O. OPTIMIZATION IN TIME DOMAIN OF THE “BIG TRIANGLE” OPERATING MODE OF FIFTH-ORDER SLIDING MODE SUBMISSIVE CONTROL SYSTEM. Conformably to electric servo drive with elastic transmission was obtained analytical expressions for value of maximal position derivative and feedback gains for bounds of position range, which provides realization of prescribed form of transient, optimal in time domain.

*Keywords:* “N-i switching” method, sliding mode submissive control system, “big triangle” operating mode.

UDC 621.313.322 Storoghko S. DESIGN of SYSTEM THYRISTOR is ASYNCHRONOUS ENGINE With INDUCTION SUPPORTS In CHAINS of ROTOR PUTTEE. In the article the considered problem of design of asynchronous engine is in the system TRN-AD with a nonlinear rotor. Presented differential equalizations of mathematical model and them decision program SIMULINK. Shown estimation of the starting modes. The direct start-

ing gets better considerably, if to regulate tension of feed from 0 to nominal. Good starting quality is megascopic due to induction supports.

*Keywords:* asynchronous engine, design, without shock starting, flow diagram, starting descriptions.

### **Section of «Heat-power Engineering. Heat Engineering»**

UDC 669.162.1 Mnyh A. THE STUDY REQUIRED THE SEGREGATION OF THE GRANULES ACCORDING TO THE HEIGHT OF THE LAYER TO ELIMINATE UNEVEN HEAT TREATMENT OF THE PELLETS. In article presents studies on the thermal regime of firing pellets. For example, a unit volume of the layer of material obtained amount of heat energy released and absorbed in the layer horizons. The dependence of the amount of energy and the annealing time on the diameter of the pellet required for the completion of its heat treatment.

The allocation is the average diameter of the granules of the material layer horizons, in order to equalize the thermal regime of firing pellets. The proposed charging system to provide the required load conditions.

*Keywords:* segregation, iron ore pellets, thermal regime, horizon layer.

UDC 621.1.018 Kashinskiy I., Chuhno S. TIMING HEATING OF DROP IS ON THE OVERHEATED SURFACE. Article performed theoretical calculations of heating time on the surface of superheated drops to a temperature of maximum intensity of drop evaporation. The got results correspond experimental information for large drops which move with low speeds

*Keywords:* drop, overheated surface, heating, time of evaporation.

UDC 621.181.126 Glushchenko O. DEVELOPMENT OF MATHEMATICAL MODELS COLLABORATIONS GAS AND AIR REGENERATOR HEATING WELLS TO OPTIMIZE THEIR UTILIZATION CHARACTERISTICS. The mathematical model of common thermal regenerator gas heating and air wells. Based on theoretical research established that when heating fuel and air exist optimal position dividing wall regenerators, providing maximum utilization of waste heat of combustion products.

*Keywords:* regenerator heating wells, secondary energy resources, mathematical model, dividing wall, fuel, waste products of combustion.

UDC 62.50:513.83 Dolgoplov I., Tuchin V., Sadovoy A. TOPOLOGOEXERGOECONOMIC MODELLING OF PHYSICO-TECHNOLOGICAL SYSTEM DYNAMIC. The results of topologoexergoeconomic modelling of the hydraulic system are presented. A model is developed for the analysis efficiency of FTS with the use of few forms of different physical nature energy.

*Keywords:* exergy, topology, physic-technological system, mathematical model, exergoeconomic.

### **Section of «Information Technology»**

UDC 005.4:004.9 Karimov G. MODERN INFORMATION TECHNOLOGIES IN QUALITY MANAGEMENT. Based on analysis of the concepts of development of automated information management systems and the evolution of quality management systems defined the place of QMS software products that implement the principles of ERP-system.

Defined the directions for future research in area of principles implementation principles. TQM based ERP management concepts.

*Keywords:* total quality management, quality circle, MRP II, ERP, ERP II, system of quality management.

UDC 004.057.3 Zhulkovska I., Zhulkovskyi O., Shaganenko R. CALCULATION OF THE FULL RANGE OF VALUES FLOATING POINT IN IEEE-STANDARD. The article describes the features of the machine representation, storage, and appointed a special kind of values that can be represented in floating point standard IEEE 754. These include the so-called signed zero, as well as the positive and negative infinity. Also described is the action-representation of real numbers, get their full range of different formats for the specified standard.

*Keywords:* floating-point number, standard, format, signed zero, significand, infinity, full range.

### **Section of «Chemical Technology. Biotechnology»**

UDC 628.336:661.152 Ivanchenko A., Dupenko O., Zharova O., Pidanova S. IMPROVEMENT TECHNOLOGY BIOLOGICAL WASTEWATER TREATMENT COKE-CHEMICAL PLANTS INVOLVING USE OF CHEMICAL ADDITIVES. The urgency of finding scientific solutions to the problem of increasing the degree of biological wastewater treatment coke-chemical plants, in particular from phenols. For the first time regularities the effect of sodium carbonate, trisodium polyphosphate and carbamide on the process of biosurety phenols and pH in the aeration tanks. It is experimentally shown that the addition carbamide in the wastewater coke-chemical plants accelerates the degree of biological purification from phenol 1,9 to 3,5, while the dose carbamide 0.5 g/dm<sup>3</sup> for use on industrial scale is recommended. As alkaline additive to maintain pH of wastewater to use sodium carbonate is recommended.

*Keywords:* coke-chemical plant, wastewater, carbamide, reagents, biological treatment, activated sludge.

UDC 661.632 Laricheva L., Voloshin M., Usenko V. THE RESEARCH OF DECOMPOSITION PROCESS OF PROSPHORITES WITH THE USE OF PHOSPHORIC ACID. The research of the decomposition process of aluminium and iron containing proshporites with the use of phosphoric acid (10 – 20 % P<sub>2</sub>O<sub>5</sub>) depending on temperature and process duration has been conducted. It has been shown that in the interval of 50-80 °C temperature has no effect on the decomposition degree of the phosphate part of phosphorites and has significant effect on the decomposition of admixtures that contain sesquialteral oxides of iron and aluminium depending on the chemical and mineralogical composition of raw materials.

*Keywords:* acidic processing of phosphates, phosphoric acid, sesquialteral oxides of iron, sesquialteral oxides of aluminium, decomposition degree.

UDC 621.794.42.002.8 Dmitrikov V., Protzenko A., Shestozub A. RESEARCH AND DEVELOPMENT OF TECHNOLOGIES OF RECYCLING OF THE ETCHING SOLUTION TO GIVE AMMONIUM SULFATE. Report II. Concretized technology and stages of disposal of waste of etching solution with sulfate acid. Created hardware-technological scheme of waste etching solutions to produce ammonium sulfate and ferum(III) hydroxide. The proposed hardware-technological scheme solves a number of environmental problems

and has the following advantages: no waste, ease and speed of implementation of all stages of the process, the high basic technical characteristics of utilization process for waste of etching solution with sulfuric acid.

*Keywords:* hardware-flow scheme, sulfate acid, ammonium sulfate, recycling technology, etching solutions, ferum(III) hydroxide.

UDC 604.4:664 Gulyaev V., Anatsky A., Filimonenko O., Smal S. PROBIOTIC DRINK'S BIOTECHNOLOGY ON BASIS OF DAIRY WHEY. In the article considered the actual problem of production of probiotic fermented milk products based on milk whey. The study of the biological activity of whey fermented with probiotic cultures *Bifidobacterium bifidum*, *Lactobacillus plantarum*, *Lactobacillus acidophilus* in the fermentation process and defined the dynamics of changes in the acidity of whey depending on the time of fermentation.

*Keywords:* probiotics, whey, *Bifidobacterium bifidum*, *Lactobacillus plantarum*, *Lactobacillus acidophilus*.

UDC 604.4:664 Gulyaev V., Golovey O., Filimonenko O., Krivoruchko I. RESEARCH OF TERMS OF RECEIPT BIOLOGICALLY OF ACTIVE FOODS IS FROM SERUM AND BERRIES. The paper considers of production technology phyto fermented milk jelly products on the basis of whey with the use bacterial sourdough yogurt and yogurt fitness Good Food and yogurt VIVO. Investigated the change of acidity products and biological activity of the microbial cultures, in the process cultivation at different temperatures regime.

*Keywords:* bacterial sourdough, milk whey, acidity.

### **Section of «Life Safety»**

UDC 614.71/72:656.13 Bielokon K. POPULATION HEALTH RISK ESTIMATION FROM ATMOSPHERIC AIR POLLUTION CAUSED BY MOTOR TRANSPORT IN THE ZAPORIZHIA CITY. The estimation of risk for health the population from influence ejections of motor transport of the city Zaporizhia is spent. It is calculated individual and total cancerogenic risks, and also factor and an index of danger not cancerogenic risk. After analyzing ecological emissions safety of the motor transport it was established that work of motor transport belongs to the average degree of risk and ability to get respiratory organs diseases, immune and circulatory system diseases of old persons, pregnant women and children.

*Keywords:* carbon oxide, hydrocarbons, pollution, atmosphere air, ecological safety, inhabitants health risk.

UDC 631:333.46 Fedko S. ANALYSIS OF OCCUPATIONAL ON-THE-JOB INJURY RATE AS A TOOL FOR ITS PREDICTION AND PREVENTION. The system dynamics of on-the-job injury rate changes in Ukraine over a period of the last 5 years has been considered. Modern methods of analysis of on-the-job injuries rate in the workplace as a tool to establish tendencies and statistical regularity of its frequency have been estimated; the causes of industrial accidents with fatal injury over a period of 2009-2013 have been analyzed. A number of organizational measures for the prevention and prediction of industrial safety have been offered.

*Keywords:* estimation, prevention, methods of analysis, tendencies, structural changes, industrial injuries.



UDC 613.6.027:669-131.2 Vernigora V., Tolok A. ANALYSIS PRODUCTIVE TRAUMATISM IN MACHINE-BUILDING INDUSTRY FOR PERIOD of 2010-2014 YEARS. In the article the brought analysis over of productive traumatism in machine-building industry of Ukraine for the last five years, lighted up basic factors (real terms of labor) that assist the origin of accidents the occupational diseases on the enterprises of industry and the brought recommendations over on their decline and prevention in general.

*Keywords:* productive traumatism, industry, terms of labor, safety, accident.

UDC 628.511.2:669.1 Gasilo Ju., Romanjuk R. ASSAYING SOURCES OF A DUST GENERATION ON WORK STATIONS OF A METALLURGICAL FACTORIES AND WORKING OUT OF PROVISIONS ON IMPROVEMENT OF WORKING CONDITIONS. Sources origination of a dust at the metallurgical factory are analyzed: on sinter plant, in a blast-furnace, steelmaking and rolling departments. The dust is organized at shattering or refinement of hard materials and transportation of loose substances, and owing to refrigeration and condensation steams of metals and non-metals which deposit at high-temperature processes. Provisions on improvement of working conditions on places with considerable stressing of a dust which consist in dust decrease in sources of its origination, conducting of treatment-and-prophylactic provisions which warn development occupational diseases and provisions on rehabilitation of people which work with harmful conditions are resulted.

*Keywords:* dust, work station, microclimate, exploration, agency, health, prevention.

### **Section of «Education»**

UDC 004.7 Lytvyn A. IT DISCIPLINES STRUCTURE BASED ON OPEN SYSTEMS. Develop structure of teaching IT courses for students of non-computer trends, which is based entirely on open source software. The group appropriate to include OS Ubuntu Linux, office suite LibreOffice, collection SMath Studio + Maxima for solving engineering problems, programming environment Lazarus IDE, Eclipse IDE, FreeBASIC, StarBasic IDE. The quality and capabilities listed software does not degrade the usual capabilities of existing software.

*Keywords:* software, Ubuntu Linux, LibreOffice, a programming environment.

UDC 004.054 Timoshenko D., Shumejko A., Zhulkovskyi O. EDUCATING TO INITIAL SKILLS OF TESTING SOFTWARE. One of methodologies of educating of students-programmers to discipline is considered "Quality of software and testing". It allows to instil initial skills of the successful testing of software, that will give an opportunity to the graduating students to promote chances on successful employment and further career advancement.

*Keywords:* quality, testing, software, methodology, skills, program ListBoxer.

UDC 378 Leshchenko O. THE USE OF INFORMATION TECHNOLOGIES IN THE FOREIGN LANGUAGE TEACHING FOR STUDENTS OF HIGHER TECHNICAL SCHOOL. The article deals with the problem of the effectiveness of information technology in teaching discipline "Methods of foreign languages teaching using information technologies" for students-philologists of distance learning of Dniprodzerzhinsk State Technical University. In the author's own experience the benefits of electronic learning is demonstrated, and also some disadvantages are revealed. Author focuses on expanding opportunities to introduce

much more theoretical material than usually intraditional lectures, changing the paradigm of relations between participants of educational process.

*Keywords:* information technology, Internet resources, electronic devices, educational process, intellectual activity.

UDC 378 Kuzmenko N. THE APPLICATION OF INTERNET RESOURCES OF GENERAL USE IN THE FORMATION OF STUDENTS FOREIGN LANGUAGE COMMUNICATIVE COMPETENCE. The article discusses the formation of foreign language communicative competence. Formation of the latter one is due to the presence of communicative attribution with developed skills of dialogical speech. The working out of dialogical skills can take place with the help of the Internet resources of general use that provide additional opportunities and time for both students and teachers.

*Keywords:* student, dialogic speech, foreign language communicative competence, internet resources of general use.

UDC 378.147 Chernyi O. RAISING EFFICIENCY OF TRAINING STUDENTS ON PRACTICAL LESSONS COURSE «STRENGTH OF MATERIALS». For the achievement of one of the main objectives of the educational process – the development of productive thinking of students, future specialists in the field of construction and repair of technical constructions – the teacher of the Department «Theoretical and Applied Mechanics» the technique of carrying out practical studies on course «Resistance of materials», based on the strengthening role of orientation activities of the students.

*Keywords:* the orientation activity of students, the executive activity of students, re-productive thinking, productive mentality.