List of Abstract

No	Paper	Abstract
1	001-rus	**EMOTIONAL AND THE ACADEMIC SIDE-EFFECTS OF CYBERBULLYING ON STUDENTS IN A RURAL HIGH SCHOOL IN SOUTH AFRICA** Dr Parvaneh Farhangpour, **Prof. Nancy Mutshaeni** *University of Venda* *Nancy.mutshaeni@univen.ac.za* **Abstract: Background**: The overwhelming use of internet and social media among youth in South Africa opens both negative and positive side-effects on the users. Cyberbullying is one manifestation of such negative effect. Rural high school students are not immune to this modern age social problem. To protect them against the possible hazards, it is important to study this phenomenon among this group of youth. **Objectives**: This study explored the extent of the use of internet and social media, the forms and frequency of cyberbullying and their effects on the emotional wellbeing and academic performance of Grade eight to ten students in a rural high school in Limpopo, South Africa. **Method**: This study used a mixed research approach. Eighty randomly selected 50 females and 30 males from Grade 8 to 10 in a rural high school participated in this survey and 6 purposefully selected victims of cyberbullying completed an interview schedule.**Results**: The majority of participants had access to cyber technology and used Facebook frequently. More than half of the participants experienced a wide variety of cyberbullying, sexual offensive being the highest. They were negatively affected both emotionally and academically to the extent that some thought of suicide. **Conclusion**: Even though students in this rural high school have access to latest cyber technology, they are not equipped to prevent and cope with its negative effects hence suffer in solitude. The study recommends the establishment of an anti-cyberbullying policy and counselling at school, and advises stakeholders who intend to expand online learning at schools to include the prevention of cyberbullying and, put supportive mechanisms in their programmes for its successful implementation.

2	**002-rus**	**Academic Inculcating Behavior Scale and Validation using CSE and PsyCap in Diverse Faculty Members** **Duchduen Bhanthumnavin** *The Graduate School of Social and Environmental Development, National Institute of Development Administration, Bangkok 10240, Thailand* **Abstract:** Academic Inculcating Behavior Scale (AIB) for faculty members in university was constructed for assessing and developing university lecturers' quality. There were four studies with the total sample of 828 university faculty members in Thailand. Ninety items were assembled, but only 31 items were selected by a group of educational-behavioral science experts. In study1 with 100 respondents, 25 out of 31 items met the criteria for item quality. Results from EFA in study 2 using 300 new respondents revealed a three-factor model (4 items for giving positive reinforcement, 3 items for giving social support, and 4 items for modeling and preventive action) with the total of 11 items and with 59.131% of the total variance accounted for. This model was confirmed by CFA with another 300 respondents in study 3. In study 4, using 128 respondents, criterion-related validity of the AIB scale score was demonstrated by the predictive power of four independent variables by performing multiple regression analysis. Three independent variables which were positively related to AIB were CSE, PsyCap, and level of education of the respondents. Furthermore, it was found that faculty members with doctoral degree reported higher score of AIB than the ones with Master's degree. The results showed that AIB measure has acceptable qualifications. However, more predictors of AIB should be investigated and confirmed by experimental studies. Consequently, the necessity to carry out intervention program for faculty members can be met with success. This will benefit the students, as well as ensuring that higher educational institutions can perform their expected functions.
3	**004-rus**	**Construction of Attitude Towards Punctuality Scale for University Students and Relationships to CSE and FTP** **Duangduen Bhanthumnavin**[a], Duchduen Bhanthumnavin[b] and Bung-On Sorod[c] [ab]*The Graduate School of Social and Environmental Development* [c]*The Graduate School of Human Resource Development* *National Institute of Development Administration, Bangkok 10240, Thailand* **Abstract:** Time is essential in the modern industrial-technology society. In order to enhance time management skills in university students, Attitude toward punctuality Scale (ATP) was constructed. There were four studies with the total sample of 1,325 university students in Thailand. Eighty-three items were constructed, but only 36 items were selected by a group of experts. A six \unit rating scale

		accompanied each of the item, ranging from 1 “not true at all” to 6 “extremely true”. In study1 with 200 students, 31 out of 36 items met the criteria for item quality. Results from EFA in study 2 using new 500 students revealed a three-factor model (5 items for cognitive aspect, 4 items for behavioral intention aspect, and 3 items for affective aspect) with the total of 12 items and 59.303% of the total variance accounted for. In study 3 using another 300 students, this model was confirmed by CFA. In study 4 using 225 students, it was found that CSE and FTP were positively and significantly related to the newly constructed ATP (r = .357 and .256, respectively). Furthermore, ATP could predict punctual behavior beyond CSE and FTP for 26.500% with the total of 38.40%. The importance of ATP was discussed. Future experimental studies, as well as, possible intervention programs are suggested.
4	**005-rus**	**The Willingness of Mathematics Teachers in Facing 21st Century Skills** **Mazlini Adnan**[1], Nor Shaheera Ismail[2] [1]*Mazlini Adnan, Universiti Pendidikan Sultan Idris; mazlini@fsmt.upsi.edu.my* [2]*Nor Shaheera Ismail, Universiti Pendidikan Sultan Idris; nshaheera88@gmail.com* **Abstract:** This study aims to examine inventive thinking, high productivity, effective communication and digital age literacy in measuring the 21st century skills among Mathematics teachers. The method used is survey using questionnaire as a research instrument. This study was conducted at the Universiti Pendidikan Sultan Idris which involved 80 students of Bachelor of Education (Mathematics) at the Faculty of Science and Mathematics. Data obtained through questionnaire instrument were analyzed using descriptive statistics involving mean and inferential statistics involving Pearson's correlation, multiple regression and ANOVA analysis. The findings show that correlation between inventive thinking and effective communication is strong with correlation value ($r = 0.608$, $N = 80$, $p < 0.05$), high productivity constructs and digital age literacy have weak relationships and positive correlation with effective communication $r = 0.349$, $N = 80$, $p < 0.05$ and $r = 0.329$, $N = 80$, $p < 0.05$). The multiple regression analysis shows that effective communication becomes the key predictor in improving CGPA of mathematics teachers. This suggests that future mathematics teachers will be more likely to have effective communication skills than inventive thinking, high productivity and digital age literacy. While the 21st century skills with the CGPA of the mathematics teachers are not significant. In view of this, by reviewing these skills, teachers, educational organizations and policy makers, especially the Curriculum Development Division, can identify the weaknesses and shortcomings of 21st century skills among potential teachers. Teachers also need to diversify the more creative and innovative teaching methods and feature 21st century skills.

5	**008-rus**	**A Study of Psychosocial Factors Related to Preserving Thai Traditions of Undergraduate Students** **Shuttawwee Sitsira-at** *Department of Psychology, Faculty of Humanities, Srinakharinwirot, Bangkok 10110, People's Kingdom of Thailand* **Abstract:** This correlational comparative study aimed at investigating important psychological and situational predictors of preserving Thai traditions, as well as, finding the groups at risk of not preserving Thai traditions. The sample of 1,297 undergraduate students from 10 universities in junior and senior levels was obtained. The sample consisted of 265 male students and 1,032 female students. The stratified quota random sampling was used. The hypotheses are tested by Multiple Regression analysis. Results of the research found that the positively correlation between students' psychological traits, social situations, psychological states and preserving Thai traditions is statistically significant at .01. Results of the total sample from multiple regression analysis indicated that behavioral intention to Thai-value was the first important predictor of this behavior, followed by social norm, cultivated by families, opening for information, role model, core-self-evaluation, attitude toward Thai products, psychological immunity, perceived ease of shopping Thai products, ego identity, and Future orientation and self-control with the accuracy of 45.3%. The highest predictive percentage of 31.6% was found in male students with the same important predictors as the total group. Furthermore, the results showed that male in senior students were the groups at risk of not preserving Thai traditions.
6	**009-rus**	**Extraction and characterization of policosanol from wheat germ** **Anakhaorn Srisaipet** [1], Pitchaporn Keawprom[2] *[1]Department of Chemistry, Faculty of Science, Maejo University, Chiangmai, Thailand . Email: anakhaorn@hotmail.com, anakhaorn@mju.ac.th* *[2]Department of Chemistry, Faculty of Science, Maejo University, Chiangmai, Thailand . Email: anakhaorn@hotmail.com* **Abstract:** Policosanol is a mixture of long chain alcohols, with chain lengths varying between 20 to 36 carbon atoms that has been proven to be effective in lowering cholesterol levels in the body. The objective of this research is extraction the policosanol from wheat germ and characterization of the alcohol. The dried milled wheat germ was hydrolyzed by refluxing with 1.0 N methanolic NaOH at 80°c for 45 minutes. The product hydrolyzed are consists of long chain alcohol (policosanol) and free fatty acid. The purification of hydrolyzed products was performed by extraction with dichloromethane in twice time following adjustment the pH with 6 N hydrochloric acid until neutrality thereby the purity of policosanol was confirmed by TLC. The

		aliphatic long chain alcohols composition in policosanol were establish in 18-34 carbon atoms analyzed by gas chromatographic technique (GC). Wheat germ can be a viable policosanol source for health benefits product development or food supplements.
7	**011-rus**	**Authentic Leadership and Proactive Work Behavior: A Moderated Mediation Model** **Chuchai Smithikrai*** and Jeeraporn Suwannadet *Department of Psychology, Chiang Mai University, Chiang Mai, 50200, Thailand* **Abstract:** The purposes of this study were twofold: (1) to examine the mediating role of organization commitment in the relationship between authentic leadership and proactive work behavior, and (2) to investigate the moderating role of conscientiousness in mediating process of organization commitment. Using anonymous questionnaire survey, the sample was comprised of 375 persons working in a large public university in the north of Thailand. The SPSS Program with PROCESS macro (Model 4 and Model 8) was used to test the hypotheses regarding the mediation and the moderated mediation effects. As predicted, the results indicate that organizational commitment mediated the relationship between authentic leadership and proactive work behavior. Moreover, the direct and indirect effects of authentic leadership (through organizational commitment) on PWB are particularly strong under high compared with low levels of conscientiousness.
8	**013-rus**	**Managing and Improving Quality in Industrial and Service Organizations: Implementing Practical Methods** **Moshe Sharabi** *Yezreel Valley Academic College, Israel* **Abstract:** Globalization is transforming our world into an economic global village. In this environment, both small and large businesses are required to become more efficient and cope with a competitive global market where customers' expectations continually increase. In this new reality, quality is critical for success and yet, many managers ignore this at their own peril. This paper will focus on the philosophy and methods for improving the quality of a product/service, which in turn leads to a good long-term reputation and improved profitability. This philosophy that leads to "Quality Chain Reaction" includes: a) customer-focused strategy and creation of quality culture; b) emphasizing on prevention process; c) constant improvement of work processes; d) establishment of employee involvement and commitment; e) management support and positive leadership. In addition, it will present the rationale and

		practical implementations of the methods suggested.
9	**014-rus**	**Net migrations and labour market in the European Union** Lorena Škuflić[1], Mira Krpan[2], **Fran Galetić[3]** *[1]Faculty of Economics and Business, University of Zagreb, Croatia; lskuflic@efzg.hr* *[2]Faculty of Economics and Business, University of Zagreb, Croatia; mkrpan@efzg.hr* *[3]Faculty of Economics and Business, University of Zagreb, Croatia; fgaletic@efzg.hr* **Abstract:** In this article we analyze recent migration trends in EU, being especially interested in net migrations, and movement of selected labour market indicators for foreign and national citizens in four largest EU economies according to the number of foreign-citizens of working age. Based on the collected data, we estimate the time trend models for each of the EU countries and predict net migration for the next three years.
10	**015-rus**	**Entrapment between Permanent and Temporary Jobs: Precarious Work Behavior, Organizational Justice and Perceived Organisational Support** **Noormala Amir Ishak*,** Norashikin Hussein**, Ibiwani Alisa Hussain***, and Siti Fazilah Hamid** **Arshad Ayub Graduate Business School, Universiti Teknologi MARA, 40450 Shah Alam, Malaysia* ***Faculty of Business and Management, Universiti Teknologi MARA, 40450 Shah Alam, Malaysia* ****Asia-Pacific University of Technology & Innovation, Technology Park Malaysia, 57000 Kuala Lumpur, Malaysia* **Abstract:** Mounting research evidence suggests that permanently employed employees are increasingly involved in precarious work behavior. This new trend of employment has provoked researchers to center their attention to the reasons leading to this precarity. With regard to this, we hypothesized that organizational justice and perceived organizational support are negatively related to precarious work behavior. Using online survey data on employees who are permanently employed but concurrently doing side business, a cross sectional sample of 179 was gathered. The results found that organizational justice and perceived organizational support are negatively related to precarious work behavior with organizational justice having the greater influence. Implications for future research and practical applications are discussed.
11	**018-rus**	**Coping Strategies of Managers from the Perspective of Gender**

		Lucia Zbihlejová[1], Miroslav Frankovský[2], Zuzana Birknerová[3], Ladislav Suhányi[4] *[1]Department of Intercultural Communication, Faculty of Management, University of Prešov in Prešov, Konštantínova 16, 080 01 Prešov, Slovakia; lucia.zbihlejova@unipo.sk* *[2]Department of Managerial Psychology, Faculty of Management, University of Prešov in Prešov, Konštantínova 16, 080 01 Prešov, Slovakia; miroslav.frankovsky@unipo.sk* *[3]Department of Managerial Psychology, Faculty of Management, University of Prešov in Prešov, Konštantínova 16, 080 01 Prešov, Slovakia; zuzana.birknerova@unipo.sk* *[4]Department of Marketing and International Trade, Faculty of Management, University of Prešov in Prešov, Konštantínova 16, 080 01 Prešov, Slovakia; ladislav.suhanyi@unipo.sk* **Abstract:** The main objective of the proposed paper is to find out whether there exist any statistically significant differences in the assessment of the selected behavioral strategies in coping with stressful or demanding situations between managers from the perspective of gender. A differential analysis was conducted on the sample of 129 respondents (55 male managers: 42.6% and 74 female managers: 57.4%).) on the basis of the data obtained by means of two methodologies for detecting the coping strategies: Brief Cope (Carver 1997) and CISS (Endler a Parker 1990). The results of the analysis confirmed the existence of statistically significant differences between the male and the female managers in assessing the individual coping strategies in demanding managerial situations. Based on these results it may be concluded that in terms of assessment of the coping behavior, male managers use active coping more extensively, whereas female managers have a greater tendency to use the emotion-oriented coping strategies.
12	**019-rus**	**Management Students and Education of Coaching** **Ladislav Suhányi**[1], Tatiana Lorincová[2], Anna Tomkova[3] Lucia Zbihlejová[4] *[1]Department of Marketing and International Trade, Faculty of Management, University of Prešov in Prešov; ladislav.suhanyi@unipo.sk* *[2]Department of Managerial Psychology, Faculty of Management, University of Prešov in Prešov; tatiana.lorincova@unipo.sk* *[3]Department of Managerial Psychology, Faculty of Management, University of Prešov in Prešov; anna.tomkova@unipo.sk* *[4]Department of Intercultural Communication, Faculty of Management, University of Prešov in Prešov,; lucia.zbihlejova@unipo.sk* **Abstract:** Education in the area of coaching is meaningful from the perspective of possibilities of applying individual coaching approaches in the future practice of Management students, who represent the sample of this research. This report presents the research results gained by analyzing differences between the target group and the

		control group in coaching. Assumed significant differences were in favor of students who had formerly passed the subject Basics of Coaching in Business Management. A questionnaire for assessment of coaching, which detects factors of Cognition, Competence and Social context, by Birknerová and Filipová (2013) was used for these purposes. Results of the analysis proved the existence of significant statistical differences between the groups of Management students from the social and contextual viewpoint on coaching at the cognition level. Although acquiring coaching skills is possible after years of managerial practice, it may prove essential to acquire at least their basics during university studies.
13	**022-rus**	**Integrating STEM Education through Project-Based Inquiry Learning In Topic Space among Year One children** **Mazlini Adnan[1],** Marzita Puteh[2], Nor'ain Mohd Tajuddin[3], Siti Mistima Maat[4], Ng Chee Hoe[5] *[1]Mazlini Adnan, Universiti Pendidikan Sultan Idris; mazlini@fsmt.upsi.edu.my* *[2]Marzita Puteh, Universiti Pendidikan Sultan Idris; marzita@fsmt.upsi.edu.my* *[3]Nor'ain Mohd Tajuddin, Universiti Pendidikan Sultan Idris; norain@fsmt.upsi.edu.my* *[4]Siti Mistima Maat, Universiti Kebangsaan Malaysia; sitimistima@ukm.edu.my* *[5]Ng Chee Hoe, Universiti Pendidikan Sultan Idris; ngcheehoe79@gmail.com* **Abstract:** This research aims to investigate the effect of integrating STEM education through Project-based Inquiry Learning (PIL) and the used of the STEM modules which consists of three projects on topic Space in Year One Mathematics Syllabus in *Kurikulum Standard Sekolah Rendah* (KSSR) of Malaysia. STEM education in primary school focuses on introduce and awareness of students about the importance of STEM education. The projects in STEM modules are covering the different ethnic cultures in Malaysia. The modules are designed using the four phases in PIL. Concepts and the explanation of STEM education on each project are emphasized and provided in the modules so the teachers able to carry out the projects by using the modules. By using the modules in primary Mathematics, the students and teachers will be more understand on how to integrating the Mathematics' concepts in STEM education.
14	**027-rus**	**Bungled Pronunciation of English in Colleges of Punjab, Pakistan: A Survey Along with Its Ramifications** **[1]Akeel Ahmed** *[1]Department of English, Government Degree College, Pasrur (Sialkot), Pakistan* **Abstract:** The prime and predominant objective of this study is to investigate and analyze the botched pronunciation of English language words prevalent in public and private sector colleges of Punjab, Pakistan. We have discussed that, what are the key factors which are

		responsible for such botched and poor pronunciation. The paper has surfaced the bungled pronunciation got through an oral questionnaire. The paper has identified the major pitfalls embedded in English language pronunciation while pointing out why it is happening and where the problem lies. A comparative study regarding public colleges of those countries where English is secondary language viz. India, Bangladesh and Sri Lanka. Students of different subjects and teachers of different subjects having teaching experience of several level have been taken on board. Altogether 30 govt. in-service public sector college teachers and 40 teachers from private sector colleges responded to the questionnaire; and 117 students from private and public sector colleges tendered responses. The study has underpinned the English language skill of the teachers by pinpointing that what weightage pronunciations bears in English language skill.
15	**029-rus**	**Ambition and Consequences The Future of Iran's Involvement in Latin America After the Nuclear Agreement of 2015** **Hanan Alhajeri** *Kuwait University Department of Political Sciences, College of Social Sciences Shwaikh Campus, Kuwait City, Kuwait* *Politicsku@gmail.com* **Abstract:** This paper explores The Islamic Republic of Iran's involvement in Latin America before the Joint Comprehensive Plan of Action (JCPOA) was reached in 2015, highlighting the essence of the Iranian ambition directed at creating a safe haven for its covert activities in the backyard of its perceived historical enemy: the United States of America. The author attempts to predict the future of Iran's presence in that region after the JCPOA was reached and adopted by analyzing Iran's hidden agenda and strategies in Latin America. This paper also examines four factors that play an important role in the long established aspirations of the Iranian government to expand its revolution beyond its borders in order to establish a global Islamic entity. This would eventually create a new world order where Iran is one of the key players in world politics, and where the US and Europe have limited influence. These four factors are: Iran's constitutional revolutionary principles, the Iranian hegemonic activities in the Middle East, the Iranian-Saudi rivalry and their competition over expanding Latin American relations, and the effect of the nuclear agreement on modifying Iran's behavior towards the US and the rest of the world. The author concludes that an Iranian expansion is inevitable in Latin America as Iranian interest in the region increases in an effort to protect the global advancement of its protégé Hezbollah.
16	**030-rus**	**Assessment of Ponderability of Parameters of Platform Joint on Reliability by Method of Linearization** Vera V. Galishnikova[1]*, Ashot G. Tamrazyan[2], **Denis S. Dekhterev[2]**

		[1] Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia *[2] Department of Reinforced Concrete & Stone Structures, Moscow State University of Civil Engineering, Moscow, Russia* **Abstract:** In the process of the study of platform joints of panel buildings, it was established that the most significant contribution to the reliability of the joint is provided by a number of parameters which have specialty randomly. The distribution of these parameters is described by a normal principle that does not have a simple numerical solution. To determine the probability of failure of the connection in the conduct of probabilistic calculations, method of linearization is used, which is based on the method of expanding the initial function in a Taylor series. The work assesses the impact of structural parameters of the horizontal platform joint of panel buildings on the reliability of the connection. The coefficients of ponderability of the investigated parameters are determined in estimating the probability of joint failure. The practical value of the obtained research results is to increase the reliability of the node of interface panel.
17	**031-rus**	**Elastic-Plastic Analysis of Space Trusses with Large Displacements** **Vera V. Galishnikova[1]*,** Evgeny V. Lebed[2] *[1] Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* *[2] Moscow State University of Civil Engineering, Moscow, Russia* **Abstract:** Analysis of spatial bar structures is a labor-intensive and complex task, and it must be carried out taking into account all possible limiting states in various operating conditions of structures. The aim of this paper is to give an insight into elastic-plastic analysis that enables determining the ultimate load of space trusses with large displacements. A direct method is treated in this investigation to gain insight into the computational effort required for the method. The algorithms for the direct methods are obtained by modifying the algorithms for incremental geometrically nonlinear analysis developed by one of the authors to account for yielding and plastic deformation in the bars of the truss. A Java software application has been developed based on the algorithms and the analysis of the space arch truss has been performed. The example demonstrates that direct limit analysis of space trusses with large displacements can be implemented successfully on the Java platform. The computer application is suitable as a test platform for a broad spectrum of investigations into elastic-plastic truss behavior.
18	**032-rus**	**Elastoplastic Deformation of Clay Brick Masonry under Biaxial Stresses and Mechanisms of its Performance**

		Makhmud Kharun[1]*, **Oleg V. Kabantsev[2]**, Ashot G. Tamrazyan[2] *[1] Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* *[2] Department of Reinforced Concrete & Stone Structures, Moscow State University of Civil Engineering, Moscow, Russia* **Abstract:** Plasticity properties of the masonry appear to be key requirements in order to predict seismic response from masonry construction. On the grounds of the experimental research results, the system of mechanisms of local damage in masonry elements (brick, mortar and contact nodes thereof) is formulated and justified. It is revealed that the state of interaction nodes of basic masonry materials under increasing stress is not irreversible: when the stress state of the node changes, the discrete transition from one state to another becomes possible. The proposed system of mechanisms of local damage and the tools to analyze the state of masonry elements serves grounds for elaboration of a structural model of clay brick masonry as piece-wise homogeneous multimodule composite environment. Based on the results of numerical studies of behavior of the clay brick masonry structural model with the proposed destruction mechanisms as well as on the grounds of the strength criteria system, an accurate prediction of the elastic and plastic deformation phases can be made to determine the plasticity characteristics of the masonry under biaxial stresses.
19	**033-rus**	**Experimental Study of Timber-Steel Arch with the Support Joints on Glued-in Steel Rods** **Dmitry D. Koroteev[1]*,** Farid A. Boytemirov[2], Makhmud Kharun[1] *[1] Department of Architecture & Civil Engineering, Peoples Friendship University of Russia (RUDN University), Moscow, Russia* *[2] Department of Metal & Wooden Structures, Moscow State University of Civil Engineering (MGSU), Moscow, Russia* **Abstract:** Vital problem, occurring in the operation process of bearing timber structures, is improvement of their durability in conditions of aggressive environment. Another aspect of this problem is the increase of fire resistance of timber-steel structures. One of the possible design solutions of this problem is given in the research work.The aim of the research is study of experimental arch with support joints on glued-in steel rods. The arch was developed based on typical timber-steel arch with span length 11.8 m. Geometric shape and sizes of the arch were kept without changes, but steel elements were replaced by timber elements. Design features of the arch and calculation methods, taking into account bearing capacity of the joints on glued-in steel rods, are

		given in the research work. The experimental arch showed enough reliability during the test and stiffness during transportation and mounting. The arch loading was carried out in laboratory bench by using hydraulic jacks. The load increased until the arch destruction. Deflection and deformation of glued-in steel rods were measured during the test. Information about vertical deformation in the arch and stretching tensions along the length of the rods under the load were obtained in the test results. The results show that shear tensions in the joints spread along the bonding length unevenly and they have maximum value on the surface of timber elements. The arch showed perceptivity of practical using in the mild chemical-aggressive conditions and bearing structures with high requirements of fire resistance.
20	**034-rus**	**Arrangement and Technological Solutions for Manufacturing of Transformable Quick-Assembling Single-Storey Houses from Sandwich-Panels** **Dmitry D. Koroteev*,** Alexander A. Pleshivtsev, Galina E. Okolnikova *Department of Architecture & Civil Engineering, Peoples Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** Transformable quick-assembling houses from sandwich-panels is one of the possible design solutions if we want to get ready-made houses in short time. It is especially important in locations where new factories and plants, fields of the fossil fuels extraction are developed, various catastrophes occurred and there is a necessity to carry out recovery works. The spread of such houses slows down because of arrangement and technological complications, connected with their manufacturing in current enterprises. The aim of the research work is to develop arrangement and technological solutions of re-equipment of the enterprises for manufacturing of the transformable houses. Three arrangement and technological conditions of the manufacturing system were selected for analysis and determination of rational spheres of influence of the factors group on economical parameters of the enterprise. The research results testify to effective activity of the enterprise is integral area of combination of the rational spheres of influence of arrangement and technological factors on the manufacturing process under various conditions Factors of external environment, which influence on the enterprise, manufacturing the elements of the transformable houses, arrangement and technological principles of system of quick assembling of the transformable houses, are determined under the research. The

		calculation methodic of economical, arrangement and technological sustainability of the manufacturing system was developed. Building enterprises can use the obtained results, which allow establishing, analyzing and providing equilibrium state of sustainable development at the stage of technological preparation and manufacturing of the elements of the transformable houses.
21	**035-rus**	**Tangential Developable Surfaces and Shells: New Results of Investigations** Sergey N. Krivoshapko*, Iraida A. Mamieva, **Andrey D. Razin** *Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* **Abstract:** After publication of a monograph Geometry of Ruled Surfaces with Cuspidal Edge and Linear Theory of Analysis of Tangential Developable Shells, Krivoshapko S.N., 2009, with 386 references, new papers, devoted to geometry, application and strength analyses of thin shells with the middle developable surface were published. Some results of investigations have newness and definite scientific and practical interest but some works improve methods presented before or propose new variants of application of tangent developable surfaces. In a paper, new results derived past the last 10 years and connected with needs of engineer practice and architecture of manufactured articles, structures, and erections, are analyzed. The analyses of the whole spectrum of investigations of torse surfaces and shells presented in the publications till present time will help researchers concerned to plan further investigations and to economize their time not repeating a conclusion of theorems, equations, and propositions the well-known already.
22	**036-rus**	**Statistical Assessment of Use of Labour Force in the Countries of Western Europe** **Andrew N. Zharov[1,2]*,** Nadezhda A. Stashevskaya[3] *[1] Department of Engineering Business & Management, Peoples Friendship University of Russia (RUDN University), Moscow, Russia* *[2] Department of technosphere safety, Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* *[3] Department of Civil Engineering, Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** One of the most important factors of economic development of any country is labour force. Thanks to this factor, it is possible to

		obtain surplus value. The article is devoted to analysis of the labour force in nine countries of Western Europe. The analysis was conducted in three stages. In the first stage, we analyzed the dynamics and structure of the basic indicator of the country's GDP. The second stage was devoted to the analysis of the size and composition of the labour force. Third – the assessment of the impact of the labour force and its productivity on the change of gross domestic product. The study showed the greatest number of labor force is concentrated in Germany and the UK. The main share of the labour force has higher education. GDP growth was described as increase in the labour force and labour productivity.
23	**037-rus**	**Analysis of Economic Factors Affecting Development of Renewable Energy for Power Service of Remote Consumers** Y.A. Nazarova, S.A. Zhiltsov, **I.I. Shatalova*,** N.A. Stashevskaya *Department of Engineering Business & Management, Peoples Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** The development of renewable energy sources (RES) for innovative energy supply to remote and isolated consumers is an opportunity to improve life quality of the population, which still does not have access to centralized energy supply. This paper examines the factors that affect the decision renewable energy technologies for high-quality, reliable and affordable power supply to remote areas. The study of economic viability is of paramount importance among all factors in conditions of limited funding. For Russia it is especially actual in connection with the peculiarities of the fuel and energy balance. The authors suggest that despite the low cost of traditional energy resources in Russia, the use of innovative technologies can be economically viable for the specific regions. At present, there are not enough studies whose purpose is to determine the most cost efficient and advanced economic solutions. There are no methodological and practical recommendations to foster sound decision-making. The authors analyzed a pilot program for the development of wind power in 23 settlements of the Yamal-Nenets Autonomous Region. A preliminary renewable electricity cost evaluation of wind power supply was carried out. An algorithm has been developed for assessment of RES economic viability in the region, depending on the existing energy supply system and the electricity rates. The results of the studies can serve as the basis for the formation of a sound public policy in the field of development of renewable energy sources in remote regions and isolated energy systems, determining the volumes of financing and evaluating the viability of specific projects.
24	**038-rus**	**Teaching Foreign Students Studying Graphic Disciplines in an Innovative Educational Environment** **Tatyana V. Timofeeva*,** Natalia V. Kazennova, Galina N. Oskina

		Department of Engineering Graphics & Computer Modeling, *RUDN University, Moscow, Russia* **Abstract:** RUDN University is the most multinational and internationally focused University of Russia. Every year students from more than 145 countries of the world enjoy this University to study and get a degree. Their life and studies in Russia may be really challenging for them due to a number of issues that certainly influence the level of their achievements and quality of the gained educational skills. It's very important to create comfortable and friendly atmosphere for foreign students studying in Russia because it increases the rating of Russian education abroad. In this article you will find analysis of the academic progress of both Russian and Foreign students, the analysis is based on 3 graphic disciplines: descriptive geometry, engineering graphics and computer graphics. We have consolidated a practical experience of teaching foreign students graphic subjects that involved using of information and communicative technologies in the University of Technical Sciences. The Influence of such factors as integration of descriptive geometry and computer graphics courses, implementation of the telecommunication learning resource system developed on the Moodle platform, the use of control system with tests and "cloud" technologies of AutoCAD A360 on increasing quality of the educational process organization is identified. The training function of this testing system is accurately examined. We have also enlightened the role of mobile versions of information and communication technologies for self-studying process organization.
25	**039-rus**	**Using Parametric Blocks for Construction of Flat Algebraic Curves in AutoCAD by the Example of Cassini Ovals** **Tatyana V. Timofeeva*,** Marina A. Nesterenko *Department of Engineering Graphics & Computer Modeling, RUDN University, Moscow, Russia* **Abstract:** Designing surfaces of complex shape is in demand in various industries. Forms of such surfaces are flat curves. However, the variety of these curves remains unclaimed by constructors, architects, designers due to the lack of tools for the rapid construction of these curves in modern graphical systems AutoCAD, Inventor, Revit, KOMPAS, etc. The article suggests a convenient and generally available method for constructing any curves defined by mathematical methods in AutoCAD by creating parametric blocks. For example, the lines obtained by the section of the torus by a plane parallel to the axis are chosen (curves of the fourth order are Cassini's ovals). In the process of investigation, the features of fourth-order curves are analyzed as a result of the intersection of the torus by planes parallel to the rotation axis of the torus, the shape dependence of the shape of the curves on the ratio of the parameters. We consider the problem of reconstructing the toric metric and forming a model of a spatial object along the

		contours of the obtained sections by the methods of descriptive geometry and using 3-d modeling. On the basis of the obtained curves, surfaces with generators or guides, which are Cassini ovals, are constructed.
26	**040-rus**	**Consumers' Choice Rationality Score Model** **Ya.S. Kuryshova[1]*,** T.V. Bogacheva[1], V.L. Snezhko[2], N.S. Shcherbakova[1] *[1] Department of Engineering Business and Management, Peoples Friendship University of Russia (RUDN University), Moscow, Russia* *[2] Department of Informational Technologies, Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Moscow, Russia* **Abstract:** The paper deals with a generic methodology of rating of choice rationality for different target groups. Offered method is based on the cardinal utility theory and social research about value of goods from different levels of Maslow's pyramid. This method will help to provide company's competitive edge by marketing strategy improvement. This improvement is achieved by application of customer focus policy. The novelty of the study is in the creation of a model for assessing the choice rationality for individual consumers of different gender, age, income level and place of residence. The advantages of the proposed method are simplicity, flexibility and effectiveness. The model has both scientific and practical significance. The proposed method will let the enterprises select an individual approach to each segment of their target audience, which will increase the competitiveness of the company. From the theoretical point of view, the value of the method is in its universality. The method can be useful in economics, in psychology, and in sociology.
27	**041-rus**	**Influence of Cultural Dimensions "Long Term Orientation" and "Uncertainty Avoidance" on Innovative Activity** **E.A. Kovaleva*,** V.B. Alexeenko, O.Yu. Myasnikova *Department of Engineering Business and Management, Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** The paper deals with national culture influence on countries' innovative development. Main goal is to analyze the impact of national culture on innovative activity on the macroeconomic level. The article explores Geert Hofstede's cultural dimensions that allow assessing influence of main human values and mentality special features on behavioral patterns. The authors research an interaction between long term orientation and uncertainty avoidance and a level of innovative activity in various countries by means of a multivariate correlation analysis. The authors use – high- tech exports (% of manufactured exports) for innovative activity assessment. The authors conclude that uncertainty avoidance influences innovative activity. According to the

		research an association between uncertainty avoidance and innovative activity is inverse, this fact corresponds with Hofstede's theory, the lower uncertainty avoidance, the higher innovative activity level. According to Cheddok scale an association between uncertainty avoidance and high-tech exports is strong, a correlation rate is -0,7. As far as long term orientation is concerned, the authors did not find any association with innovative activity level.
28	**042-rus**	**Analysis of International Trade Based on Complex Networks** **N.A. Navrotskaia[1],** N.Yu. Sopilko[2]*, G.M. Kutlyeva[2], S.M. Lysytska[3] *[1] Department of Economics, Saint-Petersburg State University, Saint-Petersburg, Russia* *[2] Department of Engineering Business & Management, Peoples Friendship University of Russia (RUDN University), Moscow, Russia* *[3] Department of Chemistry, National Mining University, Dnipro, Ukraine* **Abstract:** This article investigates whether cointegration approach can be the basis of an international trade network and whether such a network is relevant for analysis. We fit data on international-trade flows with a cointegration specification using cointegration approach. In addition, we use the force algorithm of Kamada and Kawai for replicating a weighted international trade network. We find that the cointegration approach in combination with the Kamada and Kawai algorithm successfully replicates the weighted international trade network structure. The presented methodological toolkit allowed to distribute the countries-participants of the network into separate groups (communities).We also identify the specific network participants – network-drivers who have specific management functions in the international trade network.
29	**043-rus**	**Influence of Reinforcement of Contour High-Strength Reinforcement without Adhesion to Concrete on the Deflections of Monolithic Beams** A.S. Markovich[1]*, V.S. Kuznetsov[2], **Yu. A. Shaposhnikova[3]**, M.I. Abu Mahadi[1] *[1] Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* *[2] Department of Architectural Construction Design, Moscow State University of Civil Engineering, Moscow, Russia* *[3] Department of Reinforced Concrete & Stone Structures, Moscow State University of Civil Engineering, Moscow, Russia* **Abstract:** Excessively large deflections in the center of the slab are one of the most significant drawbacks that prevent the spread of monolithic flat ceilings during spans of more than 7 m. The influence of the application of contour prestressed reinforcement (in a shell) without

		adhesion to concrete on the deflections of plates with the aspect ratio a/b=1÷2 is considered in the article. In the work presented, the rope laying path in the slab is represented by a part of the parabola passing through the supports, with a height that is equal to the deflection, and the length of the rope's diagonal is equal to the distance between the column axes. Knowing the initial equation of the curved axis of the rope, it is possible to calculate the values of the repulsive forces by integrating this parabola equation and obtain a formula for determining the intensity of the repulsion at any point along the length of the rope. With the help of the finite element method, the deflections of a cell of a flat plate were obtained, where the deflection was taken into account in the form of concentrated forces applied at the nodes of the grid of finite elements along the cell contour. According to the results of the study, it is established that the use of a contour high-strength prestressed reinforcement without adhesion to concrete can reduce the deflections of the slab of overlap up to 15% or more. When prestressing only on one side of the cell, it is possible to advise on the installation of prestressed ropes only on the long side of the slab with a ratio of sides a/b=1.3 or more, because the installation on the short side is not advisable.
30	**044-rus**	**The problem of numerical analysis of rigidity in binded reinforced concrete elements** M.I. Abu Mahadi*, A.S. Markovich, K.S. Akifyeva, **D.A. Miloserdova** *Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* **Abstract:** As the main method of calculating reinforced concrete structures for strength the modern Russian standards have been using the method of limiting equilibrium, which contains some contradictions. In recent years, a discussion has been developing on the transition to the deformation model of the resistance of reinforced concrete used by European code. However, there are a limited number of studies confirming the consistency of the proposed deformation model. We calculated the deformation of a slab on the basis of the Russian standards for theoretical and deformational model. The calculation was carried out by the finite element method using the model of nonlinear deformation of concrete. Then the analysis of the obtained results and their comparison with the results of calculation according to the theoretical provisions of the norms were performed.
31	**045-rus**	**Generalized Darcy's Law for Filtration Processes in Porous Media** **Yuri P. Rybakov*,** Nataliya V. Semenova *Institute for Physical Research and Technologies, RUDN University, Moscow, Russia* **Abstract:** The liquid flow in a porous medium is considered for the

		axially-symmetric case. The generalization of the Darcy's filtration law is suggested and the explanation of the so-called "near-wall" effect is given. The filtration efficiency is estimated for filters of two possible geometries: cylindrical and radial ones. As an illustration we consider also the case of the cylindrical filter with a bi-layer filling.
32	**046-rus**	**Mechanical Properties of Carbon Nanotubes in a Chiral Model of Graphene** **Yuri P. Rybakov*,** Medina Umar, Muhammad Iskandar *Institute for Physical Research and Technologies, RUDN University, Moscow, Russia* **Abstract:** Taking into account the sp^2-hybridization effect for valence electrons in carbon atoms, we introduce a unitary matrix U as an order parameter and suggest a scalar chiral model of graphene for the description of carbon nanotubes. We consider both single-walled and two-walled carbon nanotubes, analyze corresponding solutions to the model equations and estimate the Young's modulus. We discuss also the possible extension of the model in question to describe fullerenes as three-dimensional hedgehog structures (skyrmions). We find the corresponding Lagrangian density for the spheriricallly-symmetric chiral angle. The other extension of the model concerns spin and magnetic excitations of graphene-based configurations. To this end, the 8-spinor field should be introduced as a new order parameter (Rybakov, 2015).
33	**047-rus**	**Surface Electromagnetic TM Waves along the Boundary between Two Nonlinear Anisotropic Dielectrics** **Yuri P. Rybakov[1]***, Bijan Saha[2] *[1] Institute for Physical Research and Technologies, RUDN University, Moscow, Russia* *[2] Joint Institute for Nuclear Research, Dubna, Moscow region, Russia* **Abstract:** It is shown that the Maxwell's equations for surface electromagnetic TM waves, propagating along the plane boundary between two nonlinear dielectrics with arbitrary diagonal tensor of dielectric permittivity, depending on $\|\vec{E}\|^2$, can be integrated in quadratures. For the TM plane wave the magnetic intensity has only the transverse component, but the electric intensity has both transverse and longitudinal ones. This fact permits one to find the first integral of the Maxwell's equations and eliminate the magnetic intensity. The resulting equations for the electric intensity can be simplified and integrated, if one uses the transverse permittivity as the independent variable. Finally, we consider the Kerr dielectrics, with the permittivity

		being a quadratic function of the electric intensity. In this case the quadratures can be reduced to the elliptical integrals.
34	**048-rus**	**On the Deflection of Light by a Charged Rotating Black Hole** **M.L. Fil'chenkov,** Yu. P. Laptev *Institute of Gravitation and Cosmology, RUDN University, Moscow, Russia* **Abstract:** The Kerr-Newman, Schwarzschild, Reissner-Nordström, Kerr and Lense-Thirring metrics have been presented. The deflection of light by Kerr–Newman's black hole has been evaluated. Expressions for the law of motion and trajectory of light have been obtained. The black hole is assumed to be slowly rotating. The light impact parameter is considered to be much superior to the gravitational radius and classical radius of the black hole. The deflection of light is both due to attraction by the black hole mass and due to repulsion by its charge and specific angular momentum.
35	**049-rus**	**Simulation of Quantum Cryptographic System** Zar Ni Aung[1], Chan Myae Hein[1], **T.F. Kamalov[1]*,** N.V. Samsonenko[2] *[1] Moscow Institute of Physics and Technology, Moscow, Russia* *[2] Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** Quantum key distribution protocols and the questions of their protection were studied. There were estimated mutual influences between legitimate users and for any types of cracker attack. For example, BB84 protocol is shown to be unconditional security protocols using photon polarization between outlying channels. Secret keys share between spatially separated (removed or remote) legitimate users. A simple method of generating a dichotomy signal has also been accomplished. In fact, this method can open the way of probabilistic quantum states. We argue that quantum cryptographic systems can be partially simulate on a classical computer with finite degrees of freedom. Quantum entanglement is a basic tool of communication and processing of the information.
36	**050-rus**	**Analysis of Abrikosov Vortices by the Superconductivity Model at the Twin Boundaries** V.A. Chizhov[1], V.L. Bychkov[2], F.S. Zaitsev[3], **N.V. Samsonenko[4]*** *[1] Monitoring of High Energy Processes, Russian Academy of Natural Science, Moscow, Russia* *[2] Department of Physics, Moscow State University, Moscow, Russia* *[3] Department of Computing Systems and Automation, Moscow State University, Moscow, Russia* *[4] Institute for Physical Research and Technologies, RUDN University, Russia*

		Abstract: The work is devoted to the study of Abrikosov vortices using the superconductivity model at the twin boundaries (MSC-TB) proposed in the works of V.A. Chizhov. The new model allows a deeper understanding of the mechanism of formation, evolution, and destruction of Abrikosov vortices and associated creep currents. A quantitative comparison of theoretical estimates of MSC-TB with experimental data is carried out. A good correspondence is shown. Methods of fighting with the creep current are suggested. Materials are described, including new ones, which, in accordance with the theory of MSC-TB, should have improved properties of superconductivity of the second kind. Perspective directions of further research are formulated.
37	**051-rus**	**The Numerical Solution of the Rayleigh-Plisset Equation for Spark Cavitation and Calculation of the Maximum Temperature and Pressure in a Cavity** **Nikolay Yu. Kravchenko** *Institute for Physical Research and Technologies, RUDN University; kravchenko_nyu@rudn.university* **Abstract:** We study the processes typical for liquids under the influence of powerful impulses of electric current. The maximum temperature and pressure arising in cavitation bubbles at such processes are calculated. To this aim, the main equation of cavitation (Rayleigh - Plisset's equation) is solved numerically. The maximum amplitudes of fluctuations of temperature and pressure in a cavity are calculated during a collapse. The analysis of the process shows the existence of the extreme value of pressure above which the cavitation is not observed. Before the limiting pressure being achieved, the cavity increases several times, collapses and comes back to the initial radius, oscillating near it. The increasing of the maximum value of the bubble radius yields, therefore, the increasing of the extreme values of temperature and pressure in a bubble at a collapse. It is established that the maximum amplitude of a bubble during spark cavitation can reach values of the order 200. This fact gives the evidence of large local pressure and temperature in the cavity at the time of a collapse. These temperature and pressure have been calculated in this work. The main conclusion is made that in a liquid metal's phase the intensive cavitation, with local increasing temperature and pressure in a cavity, is possible. Therefore, the process in question can initiate reactions of nuclear fusion in a liquid metal's phase.
38	**052-rus**	**Bi-variational Evolutionary Systems and Approximate Solutions** **Vladimir M. Savchin*,** Svetlana A. Budochkina *Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** The use of variational methods for the construction of

		sufficiently accurate approximate solutions of a given system requires the existence of the correspondent variational principle - a solution of the inverse problem of the calculus of variations. In the frame of the Euler's functionals there may not exist variational principles. But if we extend the class of functionals then it could allow to get the variational formulations of the given problems. There naturally arises the problem of the constructive determination of the corresponding functionals – in general non-classical Hamiltonian actions – and their applications for the search of approximate solutions of the given boundary value problems. Its solution may not be unique. In particular, there can exists a bi-variational system, i.e. generated by two different Hamiltonian actions. The main aim of the paper is to present a scheme for the construction of indirect variational formulations for given evolutionary problems and to demonstrate the effective use of the non-classical Hamiltonian actions for the construction of approximate solutions with the high accuracy for the given dissipative problem. In the paper there are used notions and methods of nonlinear functional analysis and of modern calculus of variations.
39	**053-rus**	**Modeling the Accumulation Kinetics of Anionic Photo-sensitizers in Tumor Cells with Different Trans-membrane Potentials** **Kamila Z. Askarova[1],** Galina I. Morozova[1]*, Andrey A. Anoshin[2] *[1] Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* *[2] A.M. Prokhorov Institute of General Physics, Moscow, Russia* **Abstract:** The accumulation of photo-sensitizer (PS) mainly in tumor cells (TC) is a necessary condition for the effectiveness of photodynamic therapy (PDT). The purpose of this work is the modeling of the accumulation kinetics of anionic PS in TC differing in energy metabolism and trans-membrane potentials (TMP). The kinetic model (KM) including a system of linear differential equations describing the accumulation of PS in some model system based on Nernst theory, is suggested. This system consists of four parallel-sequential compartments separated by permeable membranes with different electric field gradients. These potentials include negative plasma and the mitochondrial TMP as well as energy-dependent positive TMP of the nuclear membranes. The model in question accounts for the phenomenon of reduction of plasma and mitochondrial TMP in TC due to their more rapid division in comparison with normal cells. The KM is constructed for TC of tumor areas sites under hypoxic or oxygen conditions. We conclude that the accumulation kinetics of anionic PS (chlorine E6) in the tumor cells mainly depends on the relationship between the transfer rate constants through their plasma and mitochondrial membranes, these constants being functions of TMP.
40	**054-rus**	**Discharge Curves Q=f(H) as an Active Factor of Riverbed-Forming Processes**

		Evgeniy K. Sinichenko [1] *, Ilya I. Gritsuk [1,2] , Fedor V. Rekach [1] , Leonid E. Schesnyak[1] *[1] Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* *[2] Water Problems Institute, Russian Academy of Science, Moscow, Russia* **Abstract:** The discharge curve Q=f (H) is a complex characteristic of run-of-river mode, which takes into consideration both: peculiar properties of the river bed and peculiar properties of the riverbed-forming activity. The discharge curve Q=f (H) is on the one hand the basis for the transition from levels to discharges and calculation with the help of them of all flow characteristics, on the other hand a kind of integral characteristic of the river channel mode. This article deals with the actual issue of constructing a curve, establishing relation between discharges and levels for shots of rivers when there aren`t or there are few hydrological field observations. The article analyses the peculiarities of the hydrological and run-of-river mode of Russian rivers and are defined the generalized characteristics for construction of discharge curves. The relation of the generalized indicator αF/αM with the type of river channel regime is established.
41	**055-rus**	**Schematization Methods of Project Thinking** Olga Kalinina[1]*, **Natalia Kalinina[2]** *[1] Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* *[2] Department of residential buildings, Moscow Instatute of Architecture, Moscow, Russia* **Abstract:** The article presents researches of the thinking activity of project schematization. Often, work on the project is done without understanding the problem. The solution appears accidentally and unconsciously. The quality of the result depends on the algorithm of conscious plans. Techniques of thought schematization allow us to more consciously approach design. This technique has been tested in design practice by three project teams. We investigated the technique of schematization of thought on five educational projects. The research was carried out in three project groups using the example of training projects. The results of the research showed the best effectiveness in the group, which conducted a reflexive analysis and worked with the technique of the schematization described in the article. The results of the group that worked on this technique were better than the rest. One of the basic concepts is reflexive analysis, which allows both identifying

		and mastering the actualization of the design process. The group that made the reflexive analysis also showed better results. This is part of the methodology of schematization, which is described in the article. The algorithm of thought activity and the actualization of the techniques of schematization in project thinking are disclosed.
42	**056-rus**	**Development of Design Education in Russia: History and Contemporary Problems** **Anna V. Solovieva,** Tatiana S. Semichevskaya*, Oleg V. Bik *Department of Architecture & Civil Engineering, Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** The article discusses particularities of the development of design education in modern Russia. The necessity of interrelation between classical art and design, academic art and engineering education, traditional craft and applied art was identified and represented by variety of opinions of Russian and foreign researchers. It shows the evolution of opinions on the methods of formation a creative vision in the process of professional training of future designers. Article contains a detailed analysis of the history of educational activities and creative concepts of innovative design trends and activities. It shows the specific place and role of art universities, as well as the contribution of individual masters in the development of modern design education. Today in Russia, the graduate preparation of designers is determined by the federal state standard, but the alternative system of design education on the basis of non-state private educational institutions is becoming more competitive. The results of the analysis show that the formation of a creative vision in the process of professional training of future designers implies the multidimensionality and unity of design education.
43	**057-rus**	**The Importance of Academic Education in Contemporary Architectural and Sculptural Practice** **I.V. Portnova*,** T.V. Portnova *Department of Architecture & Civil Engineering, Peoples' Friendship University of Russia (RUDN), Moscow, Russia* **Abstract:** The subject of the article is to consider the importance of academic education which played a key role in the history of architecture and fine arts. Academic traditions based on the ancient classics as the perfect art which during the XVIII and XIX centuries developed stable norms and paragons, and found the reflection in the concept of a modern architectural and sculptural image. The article considers historical factors, the situation of the postmodern epoch contributing to the concentration of artists efforts to reflect the key themes and images, namely, a man, his place in the universe. As before,

		a person and the spiritualized world of phenomena and objects get an interpretation in the new graphic aspects, techniques and methods of the younger generation masters works.
44	**058-rus**	**Hydraulic Characteristics of the Locking Element in the form of a "Curved Drop" for Water Supply Fittings** **Alexander P. Svintsov*,** Nikolay A. Konoplev *Department of Architecture & Civil Engineering, Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** The efficient design of valves for the water supply system requires knowledge of the parameters and regularity of change in the hydraulic characteristics of the locking pair. The article contains the results of a study of regularity of change in the hydraulic characteristics of the locking element in the form of a "curved drop" for plumbing fittings. The numerical values and the patterns of change in the hydraulic characteristics of liquid outflow through the hole in the form of a "curved drop", made in a thin wall defined. The patterns of change in water discharge identified, and the comparison of characteristics for different bore shape. The ability to adjustment the flow of water depends on the shape of through hole. The values and regularity of change in the hydraulic characteristics of the locking element in the form of a " curved drop" for water reinforcement obtained on the basis of theoretical and experimental studies. The results of the study are of interest in the theoretical and practical aspects for the design and manufacture of valves for water supply. The results of theoretical and experimental studies show that the form of "a curved drop" for plumbing fittings allows to have a linear change in water consumption depending on the opening tap. The coefficients allow us to design the plumbing fittings valve type with a high regulating capacity. The use of the locking element with a hole in the shape of a "curved drop" allows to reduce the loss of tap water of drinking quality. Water savings for the house for three persons is 12-15% compared to valves of other types. The study is in the continuation
45	**059-rus**	**Geometrical Aspects of the Equilibrium Statistical Thermodynamics** **Yuri G. Rudoy*,** Olga I. Chekmareva *Institute for Physical Research and Technologies, RUDN University, Moscow,*

		Russia **Abstract:** The geometrical approach due to Gibbs in the equilibrium phenomenological, or Clausius, thermodynamics (CTD) is generalized for the statistical case (STD), which is naturally stipulated by the stochastic nature of the thermal contact between the TD-object and the external surrounding (thermostat). To this end the probabilistic measure *p* is introduced into the affine space of finite-dimensional space of basic TD-variables, which is parametrized by means of the intensive variables of the thermostat. For the case of strongly additive extensive TD-variables the measure *p* possess the exponential, or canonical Gibbs form. The ordinary Clausius TD-variables are then Gibbs TD-variables averaged with the measure *p* and of primary interest are the relevant spontaneous fluctuations; in particular, they determine the accuracy of Zeroth Law of TD fulfilment.
46	**060-rus**	**Magnetization Dynamics at Elevated Temperatures: Beyond the Molecular Field Approximation for Critical Points** Olga A. Kotelnikova[1], Vladimir G. Morozov[2], **Yuri G. Rudoy[3]*** [1]*Faculty of Physics, Magnetism Department, M.V.Lomonosov Moscow State University (MSU), Moscow, Russia* [2]*Moscow Technological University (MIREA), Moscow, Russia* [3]*Institute for Physical Research and Technologies RUDN University, Moscow, Russia* **Abstract:** Some refinements to the values of magnetic critical points are proposed in order to improve the applicability universal molecular field approximation (MFA) which usually describes the equilibrium, or static, part in the non-equilibrium equations of magnetization dynamics. We show the results for the Curie and some other critical points calculated within the random phase approximation (RPA) for anisotropic Heisenberg models.
47	**061-rus**	**Contribution to Refined Basalt in Modern Nigerian Civil and Structural Engineering** Vera V. Galishnikova, **Paschal C. Chiadighikaobi*** *Department of Architecture & Civil Engineering, Peoples Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** This paper looked into the effectiveness of refined basalt in the Nigerian civil and structural engineering world. Current technology

		has been in search in the development of new type of composites which are made to measure the required conditions. A general problem of new types of structures made from high performance materials is their behavior in certain specific conditions and situations. Temperature in Nigeria keeps increasing every season. The specific gravity, tensile strength, elastic modulus, rupture strain and melting point of basalt materials are the properties in consideration for the use of the basalt material listed below in use. This increase in temperature has been an issue of concern to scientists and engineers. This concern brought about the use of basalt made materials in the construction of utilities and buildings. Basalt which is a natural resource with the ability to contain high and low temperature was looked into in this paper. The three basalt formations discussed in this paper out of other formations found in Nigeria are: Bachit Basalt Rock Formation, Kahwang Rock Formation and Ikom Columnar Basalt. Basalt fiber wool, rebar, sandwich panels, roving and roofing sheet are the basalt materials discussed in this paper for proper utilization in the Nigerian structural construction.
48	**062-rus**	**Formation of Latin American Baroque Architecture** **Andrey Ivin*,** Salem Khalabi, Vasiliy Shuvalov, Olga Plotnikova *Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* **Abstract:** This work explores the ways that brought the development of Latin American architecture to the highest extent of morphologic complexity. Understanding the evolution of forms and fusion of different traditions we can research the possibility of the progress of classical forms and ways of further possible development of the architecture and culture overall. An objective of this work is to prove that the formation of the Latin American Baroque was not an accidental combination of influences but a conscious elaboration of a universal architectural concept enabling convergence of East and West and confluence of the most various cultures in one unity. The main emphasis is put on the correspondence between the processes happening in Latin American and in Russia featuring the Eurasianist principles of cultural formation in both cases. The similar circumstances that induced the generation of progressive architecture are investigated in order to figure out the universal formation principles applicable to any kind of architectural innovation.
49	**063-rus**	**Modern Approaches to Preservation and Reconstruction of Historical Industrial Facilities** Dmitry S. Chayko*, Salem M. Khalabi, Olga G. Plotnikova, **Massimo de**

		Maria *Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* **Abstract:** This article discusses the problems of reconstruction and integration of historical monuments of industrial architecture and production facilities apart from the monuments. The problem of preservation and utilization of industrial projects, their integration into the urban environment is particularly acute in modern cities not only of Russia but of the whole world. Simultaneously, the changes in the social, political, and economic spheres of society occurring in the last decades mean a necessity to develop new positions in understanding of the effectiveness and appropriateness of the use of all that huge building, scientific-technical, technological and cultural potential, created in the period of formation and development of industrial companies. Increasingly there is a tendency of growth of any consideration of the production facility from the point of view of not only material but also social and aesthetic values. The article provides examples of both Russian and foreign practices of preservation and integration of industrial facilities explaining in details how this problem is solved in the course of experimental design by students of Russian architectural universities.
50	**064-rus**	**Use of Calcium and Magnesium Salts for Wastewater Treatment of Textile Enterprises** **E.V. Alekseev[1],** A.P. Svintsov[2], S.L. Shambina[2]* *[1]Moscow State University of Civil Engineering (National Research University), Moscow, Russia* *[2]Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** Wastewater from water softening stations contains a large amount of calcium and magnesium salts. The results of studies aimed at using these waters as natural solutions of calcium and magnesium ions in the processes of reagent purification of other categories of wastewater are presented. The conditions for the formation of sparingly soluble calcium and magnesium compounds during their alkali treatment using potentiometric titration were studied. According to the results of potentiometric titration of solutions of magnesium and calcium salts with alkali, the ranges of the active reaction of the medium are established, corresponding to the formation of precipitates in the form of hydroxides for magnesium and calcium. The potentiometric titration curves have sufficient selectivity for the quantitative evaluation of the compounds formed with acceptable accuracy. It is established that the interaction of pollutants of real

		sewage with freshly formed precipitation of calcium and magnesium hydroxides occurs according to the adsorption mechanism. Data on the sorption properties of calcium and magnesium hydroxide precipitation in relation to pollutants of textile enterprises are presented. The greatest efficiency of water purification is achieved by solid dispersed impurities absorbed by hydroxides at the time of structure formation and by dyes. The extraction of hydrocarbons, such as petroleum products and surfactants, does not exceed 40%.
51	**065-rus**	**EXAMINATION OF THERMAL INSULATION OF EXTERNAL WALLS USING THERMAL IMAGER** **Alexander P. Svintsov**, Svetlana L. Shambina*, *Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** One of the most important ways to increase the thermal and energy efficiency of buildings is to improve their thermal insulation. Thermal insulation of external walls is relevant not only for climatic conditions with a cold period of the year, but also for climatic regions with increased heat input into the premises. At present, the insulation of external walls with placing of cladding on some distance from the wall (ventilated facades) is increasingly used to improve the thermal efficiency of the enclosing structures of buildings intended for various purposes. Using of thermal insulation of external walls with placing of cladding on some distance from the wall allows to get significant reduction of energy costs not only for heating buildings in winter, but also for their cooling during the summer period of the year. It is most expedient to check the effectiveness of thermal insulation with the use of thermal imaging equipment. This allows us to obtain actual data on the thermal radiation of the enclosing structures. As part of thermal imaging survey of the building's facade is determined the heat-and-energy efficiency of the made insulation of the enclosing structures was determined. Also areas with increased thermal radiation due to the poor quality of the heat-insulation works were identified. As a result of the thermal imaging survey, the assessment of the thermal energy efficiency of the insulation with placing of cladding on some distance from the wall was made, and areas with increased thermal radiation were identified.
52	**066-rus**	**Emergent Physics of Graphene** **Elena F. Sheka** *Institute for Physical Research and Technologies, RUDN University, Moscow,*

		Russia; sheka@icp.ac.ru **Abstract:** The paper presents an overview of graphene electronic structure in light of a general concept of emergent phenomena that result from the quantum phase transition caused by continuous symmetry breaking. Spin symmetry breaking of graphene, provided by a drastic enhancement of p_z odd electron correlation, is complemented with time symmetry breaking. Taking together, the two issues give a clear vision of emergent spin peculiarities of graphene chemistry and predictably point to occurrence of emergents related to graphene physics, such as ferromagnetism, superconductivity and topological non-triviality.
53	**067-rus**	**Study of Reinforced Concrete Beams with Indirect Reinforcement of Compressed Zone in the Form of Cross Welded Mesh** Dmitry D. Koroteev[1]*, Ashot G. Tamrazyan[2], **Ivan K. Manaenkov[2]** *[1] Department of Architecture & Civil Engineering, RUDN University, Moscow, Russia* *[2] Department of Reinforced Concrete and Masonry Structures, Moscow State University of Civil Engineering, Moscow, Russia* **Abstract:** One of the design solutions, saving materials and increasing strength and deformation characteristics of concrete, is the use of indirect reinforcement. The volume of research devoted this problem for bending elements in comparison with compressed elements, is rather low. The aim of the research work is to analyze the influence of the indirect reinforcement on strength and deformation characteristics of the reinforced concrete beams. The test results of three batches of the beams with indirect reinforcement of compressed area in form of cross-welding mesh are given in the research work. Each batch consisted of the sample without mesh and two samples with various coefficients of the indirect reinforcement of compressed area. The batches were different from each other by the area of longitudinal reinforcement. The pattern change from brittle to plastic destruction of the samples was identified in the results of research. In this case, the limit deformability increases considerably with saving the high residual bearing capacity. We noticed that the influence of the indirect reinforcement on the beams work depends on not only coefficient of indirect reinforcement but also the area of longitudinal reinforcement. We explain it by growth of large deformation in concrete of the compressed area in the limit condition and, therefore, more effective inclusion of the indirect reinforcement. The bending reduction is 7.2-14.4% for the samples with mesh, the increase of the bending moment, satisfying the beginning of the concrete destruction of the compressed

		area, is 11-33%.
54	**068-rus**	**Some Ways to Create Canonical Surfaces using Computer Graphics** **Marina A. Aygunyan*,** Elena A. Mironova, Elena S. Gorshkova *Department of Engineering Graphics & Computer Modeling, RUDN University, Moscow, Russia* **Abstract:** The comparative analysis of formation of canonical surfaces in a graphics editor AutoCAD and traditional classical course in descriptive geometry is offered in the present article. The terminology used in computer graphics and descriptive geometry is different. The source data (determinant) and the law of formation of the same surfaces are also significantly different. Some of the surfaces in the general case cannot be formed in AutoCAD. In modern courses of descriptive geometry and computer graphics it is necessary to carry out connection between methods of formation of surfaces in computer and traditional variant for better understanding of properties and structures of surfaces.
55	**069-rus**	**Static Two-Beam Surface Plasmon Interferometer of the Terahertz Range** **A.K. Nikitin[1]*,** I.Sh. Khasanov[1], O.V. Khitrov[1], T.A. Rijova[2] *[1] Scientific and Technological Center for Unique Instrumentation of RAS, Moscow, Russia* *[2] Peoples Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** A new scheme of static surface plasmon-polaritons (SPPs) interferometer of the terahertz (THz) range is described. The interference pattern is formed due to interaction of two converging SPP beams that have run different distances. The original SPP beam is splitted and reflected by a flat beam splitter and a mirror disposed of the waveguiding surface and normally to it. By varying the distance spacing the splitter and the coupling element one can change the pattern period. Execution of the pattern enables one to determine both the real and imaginary part of the SPPs refractive index, which is uniquely related to the dielectric constant of the surface and the optical characteristics of its transition layer. The operating time of the interferometer is determined by the photodetector time constant, which is extremely important for studying fast processes on a conducting surface. The interferometer can work with broadband THz radiation sources (such as synchrotrons or pulsed lasers) as well.
56	**070-rus**	**Spin 1/2 Particle with Two Masses in External Magnetic Field**

		E.M. Ovsiyuk[1], O.V. Veko[2], Y.A. Voynova[2], V.M. Red'kov[2], V.V. Kisel[3], **N.V. Samsonenko[4]*** [1] *Mozyr State Pedagogical University named after I.P. Shamyakin, Mozyr, Belarus* [2] *B.I. Stepanov Institute of Physics of NAS of Belarus, Minsk, Belarus* [3] *Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus* [4] *Department of Theoretical Physics, RUDN University, Moscow, Russia* **Abstract:** Equation for spin 1/2 particle with two mass states is investigated in presence of magnetic field. The problem reduces to a system of 4 linked 2-nd order differential equations. After diagonalization of the mixing term, separate equations for four different functions are derived, in which the spectral parameters coincide with the roots of a 4-th order polynomial. Solutions are constructed in terms of confluent hyper-geometric functions, four series of energy spectrum are found. Numerical study of the spectra is performed. Physical energy levels for the two mass fermion differ from those for the ordinary Dirac fermion.
57	**071-rus**	**Perception of Nature in Culture of the New and Contemporary History. From Knowledge to Reflection on Contemporary World** **I.V. Portnova*,** T.V. Portnova *Department of Architecture & Civil Engineering, Peoples' Friendship University of Russia (RUDN), Moscow, Russia* **Abstract:** The paper investigates the vision of nature in the culture of the New and Contemporary history, beginning with the Renaissance era until the present day, singling out the key periods of Baroque, Classicism, Romantic and Post-Modernism. The theory of cognition, perception of nature and its artistic reflection has always concerned researchers, and is relevant at all times. It has been noted that in ancient times, a myth associated with the cult of this or that period, characteristically realized in art played a certain role in formation of the concept of "nature". In the Contemporary history, when myth had lost its dominant influence, the perception of nature and the depiction of animals were marked by its scientific cognition. Particularly this opened up new worldview horizons. In the general picture of sociocultural contradictions in the contemporary world and its global challenges, mind of the researcher sees nature in the perspective of their life values for future generations.
58	**072-rus**	**Mathematical Modeling and Optimization of a Three-Phase Saturable Reactor**

		Evgeni I. Zabudskiy*, Galina I. Balandina *Department of Mechanics & Mechatronics, Peoples' Friendship University of Russia (RUDN University), Moscow, Russia* **Abstract:** On the basis of Maxwell's field theory and the finite element method, a generalized mathematical model and its software implementation have been developed that make it possible to study the "anatomy" of electromagnetic devices with adjustable inductivity and to determine correlations between their structural and circuit features and differential and integral characteristics. The space-time distribution of the magnetic field in typical designs of controlled reactors with a pulsating and rotating field and their characteristics are determined, design solutions for devices optimization are adopted. The results for a three-phase saturable reactor are presented.
59	**081-rus**	**Development of Irrigation System in Paddy Cultivation Industry During British Colonial in Perak** Khairi Ariffin[1], **Hairy Ibrahim[2],** Ramli Saadon[3], Sahul Hamid Mohamed Maidin[4], Ishak Saat[5], Fauziah Che Leh[6], Mohd Kamal Kamaruddin[7], Tuan Waheda Tuan Chik[8] *Universiti Pendidikan Sultan Idris (UPSI)* **Abstract:** Before the Colonial era, agriculture was carried out to fulfill the need of peasant in small communities. Back then, peasant faced many sorts of problems to ensure the sufficiency of yields. British colonialism in Perak in 1874 had built the irrigation system which able to increase the quantity and quality of rice yield through the scheme introduced. The study was conducted using qualitative methods of analyzing the official document, annual record, proceeding and writing on British colonialism in Perak. The finding shows that Krian is one of the areas that has been the focus on irrigation system known as Krian Irrigation System. A large allocation has been spent to complete the construction of the system that is capable to increase the rice yield. Deforestation also undertaken for the construction of Sungai Manik Irrigation System, which eventually developed into a settlement. British administration left the impact on the history of the development of Perak Irrigation System and state development. The development of irrigation system implemented by the British Colonial has made Perak as an important producer of rice crop in Malay state.