

Legal Content of the Mechanism for Ensuring Transport Safety

Molchanov N. A., Egorov V. P., Matevosova E. K.

Pp 6 – 13

The authors of the article justify the necessity of designing a scientifically based model of the mechanism for functioning of the system of ensuring the country's transport safety. The importance of implementing a set of legal and organizational measures in this area, taking into account national interests and the realities of world development, is noted, and certain meaningful and legally not always accurate provisions in legislative documents affecting the stated topic are critically evaluated.

Keywords: legislation, law, science, theory, model, national security, transport safety, transport system, national priorities.

Method of Constructing Security Models of Computer Systems

Alekseev V. M.

Pp 14 – 23

The article considers issues related to the construction of monitoring systems that provide detection of threats in the information environment. In particular, the recognition method for implementing models of analyzers in the zone of a given space of trusted and possible untrusted information traffic routes.

Keywords: information security, isolated software environment, hidden channels, monitoring of subjects.

Scientific Support of Organizational and Staff Policy of Large Companies

Epishkin I. A.

Pp 24 – 28

The actual task of the current stage of adaptation of organizations to the requirements of a market economy is the scientifically based design of management structures. The structure adequate to the market becomes the most important condition for effective functioning and development of any autonomous subject of the transformations taking place in society. This is especially indicative for such a

dynamic branch of the economy as transport. The article is devoted to the research of scientific approaches to organizational and staff policy in the organizations of transport and transport education. The system of trends influencing organizational changes is proposed, the range and structural features, levels of system complexity of the project solutions being prepared are determined.

Keywords: organizational and staff policy, design of organizational structure, transport company, optimization, system, management structure.

Formation of the Surface Layer during Hydroabrasive Separation of Metals

Popov A. P., Sviridenko D. S., Komarov Yu. Yu.

Pp 30 – 34

The range of physicomaterial properties and structure of materials processed by the method of hydroabrasive cutting is considered. Technological capabilities of hydroabrasive separation of metals by a high-pressure jet are given and its comparison with such progressive methods, such as laser, plasma, and erosion.

Keywords: transport engineering, machine parts, hydroabrasive separation of metals, comparison of separation methods, quality of the separation surface.

Measurement of Deformations of Beam Spans of Bridges

Bondar I. S.

Pp 36 – 51

The necessity of application of mobile measuring and computing systems for diagnosing bridges is shown, as well as an analysis of the results of measurements of flexural deformations and natural vibration frequencies of a beam reinforced concrete spanning structure of a railway bridge during the movement of a train is provided.

Keywords: bridge, span structure, deformation, diagnostics, monitoring.

Experimental Studies of a Dynamic Lateral Stabilization System

Kaznacheev S. A., Zimenkova T. S., Krasnov A. S.

Pp 52 – 59

The purpose of the ongoing experimental research of a dynamic lateral stabilization system is to identify permanent magnets-based design solutions that provide lateral stability of a magnetic levitation (maglev) vehicle. The obtained results are useful in designing an energy independent system, i . e. one that uses no

electromagnets or superconductors thanks to which a reduction in the mass and dimensions of the system can be achieved. The practical significance of this study consists in the possibility of applying the researched principles in the design of magnetic levitation transport systems.

Keywords: magnetic levitation transport, experimental test facility, lateral stabilization, magnetic pole, Halbach array.

Vibrational Processes in the Ballast Layer Under Non-Stationary Load Conditions

Krasnov O. G., Bogdanov O. K.

Pp 60 – 77

This article presents the results of experimental research of vibrational processes in the ballast layer at the depths of 100 mm and 200 mm below the sleeper sole under non-stationary loads caused by percussive interaction between the wheels with faults in the form of flat spots on the tread, and the rails. Dependencies are established of vibrational accelerations on the values of vertical percussive loads on the rail caused by faulty wheels.

Keywords: railway track, vibrational processes, non-stationary loading, percussive forces, accelerations, crushed stone fragments, ballast layer, wheel faults.

Organization of Motor Transport Services on the Basis of Commercial Car Sharing

Kotliarov I. D.

Pp 78 – 85

A new form of collective use of cars for the domestic motor transport practice, the nature and varieties of car sharing, its technological features and socio-economic meaning are explored. The motives and functions of the user of commercial car sharing and car rental are compared. It is shown that it is right to consider car sharing as a self-service taxi. An analysis of advantages and disadvantages of car sharing, own car and taxi is conducted. An estimation is given to innovative forms of truck maintenance in the context of scientific and technological progress and the development of automated control systems.

Keywords: transport service, organization, technology, car-sharing, commercial car sharing, taxi, car, self-service.

Vortex Propulsion Units of Sea Vessels and Aircrafts

Ostroukhov N. N., Chumakova E. V.

Pp 86 – 96

Basic diagrams and estimates of the main parameters of sea vessels and aircrafts with propulsion units in the form of generators of vortex pairs, including toroidal vortices (thermals) are proposed. It is shown that the efficiency of such propulsion units increases with the increase in their dimensions, so that in case of surface vessels propulsion units provide the buoyancy of the vehicle, the ability to locate a useful volume in the above-water part, and in case of air and submarine vessels – inside the propulsion unit. Since the vortex pair moves in the environment, without experiencing frontal resistance, vessels, manufactured according to the proposed schemes, also do not have frontal resistance. This factor gives the design a considerable advantage in the cost of power to move through water and air.

Keywords: aircraft, sea vessels, vortex pair, drag, dissipation of vortex energy, structural features.

Problems of Export of Transport and Logistics Services in the Context of Integration Processes

Baskakov P. V., Matyushin L. N.

Pp 98 – 103

The example of establishment and operation of the joint-stock company «TransContainer» shows the inevitable transformation of economic relations and relations in the system of transport and logistics services that are integrated into the markets of foreign countries when transporting goods by rail. In particular, the question is raised about the scientific interpretation of the commodity essence of the service as an object of civil law and transport logistics as a type of commercial work.

Keywords: transport market, transport-logistical service, organizational and legal bases, transport logistics.

On the System of Contractual Relations in Concluding Contracts for Performance of Road Works

Moreva E. S.

Pp 104 – 117

The article considers possible options for improving the existing system of contractual relations in the road economy. One of the conditions for increasing the efficiency of road organizations, in the author's opinion, is the transition in the

conclusion of contractual agreements for construction of road structures to life-cycle contracts. An example of calculating the life cycle cost of such an object is shown, as well as the criterion by which bids from potential bidders can be evaluated for contracts of this kind.

Keywords: automobile road, contractual relations, contractual bidding, road construction, life cycle cost, contract, warranty period, calculation algorithm.

Directions of Innovation Strategy and Knowledge Economy

Inozemtseva S. M.

Pp 118 – 127

On the basis of modern methodological approaches, the author investigates the patterns of mutual influence of innovation policy and innovative economy as the basic categories of social and socio-economic processes of Russia's modernization development. The features of classification, criterial series, models and directions of strategy are shown, which are formed in the conditions of competitive market environment and contributed to the emergence of knowledge economy, intellectual capital of organizations. An assessment is given and examples of innovative projections on the state and prospects of development of transport corporations and structures are given.

Keywords: transport, knowledge economy, innovative policy, science-intensive products, development strategy.

Determination of Public Demand for Transport Services

Melnikova A. Yu.

Pp 128 – 134

The article studies the demand of the population for urban passenger transport services, and the satisfaction of passengers with the quality of vehicle operation and drivers, information support for passenger transportation. Based on the wishes of the respondents based on the results of the questionnaire survey, proposals have been developed to improve transport services in the city of Oryol.

Keywords: urban passenger transport, transport services, transport mobility, demand for transport services.

Comparative Analysis of the Cost of Port Tugs Services

Grin A. A.

Pp 136 – 144

The author presents a comparative analysis of tariffs for provision of tugs for berthing and deberthing of large-capacity vessels in the ports of Murmansk, Novorossiysk, Rotterdam. The situation is simulated, during which it is necessary to deberth the vessel with the specified parameters in the mentioned ports, the cost of such berthing is calculated, the port is determined where the berthing service will be the cheapest. The summary table allows to draw a conclusion about the positive significance of competition among port companies servicing international and long sea routes for client ships, which, due to the availability of competing parties, receive more favorable tariffs for services in the port.

Keywords: international port, sea transport, tugs, cost, tariff, deadweight, berthing, deberthing, bulk vessel.

Ring Route of Velobuses in Hanoi: Optimization of Trips

Ryabov I. M., Nguyen Thi Thu Huong

Pp 146 – 152

The level of bicycling in Hanoi is quite high compared to other major cities in the world and from the point of view of the health of residents it is desirable that it does not decrease, but increase. Therefore, the use of a specialized bus for mass transportation of passengers with bicycles (see World of Transport and Transportation, 2015, Iss. 4 [3]), for variability of route combinations in the interests of cyclists, is a promising area for improving the organization of bus transportation in the city. The article details the optimal ring route for this purpose, which will improve the quality of transport services to the population by buses without increasing the density of the route network, which would require very large capital expenditures.

Keywords: velobus, ring route, bicycling, urban passenger transportation, Hanoi.

International Patent Resources in the Study of Innovative Technologies (at the Example of GLONASS/GPS)*

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Pp 154 – 165

* Final part of the articles covering the subject. See World of Transport and Transportation Journal, Vol.14, Iss.5, pp.112–126.

In the work presented by the authors using the international patent resource Qustel-Orbit, the state of innovative activity and patenting in the field of satellite navigation GLONASS/GPS was revealed for the entire period of patenting of inventions in the world until 2014. Inventions based on the use of GLONASS/GPS systems have a wide range of practical applications. In the area under consideration, the largest number of patents is published in China, the United States, and Korea. In this row, Russia occupies the eleventh place. The positioning of patent owners was carried out according to the indices of relative similarity and with the stage-by-stage processing of information according to a given algorithm.

Keywords: patent resource Qustel-Orbit, FIPS, innovative technologies, satellite navigation, GPS, GLONASS, system analysis, patent owners.

Software Tools for Monitoring Contact Suspension

Sedykh D. V., Efanov D. V., Osadchy G. V.

Pp 166 – 179

Methods for constructing software for the system of continuous monitoring of railway contact suspension, implemented on the St. Petersburg– Moscow high-speed line are shown. The technical features of the software of the lower and upper levels of the system are highlighted. The technological process of output of monitoring results to automated workplaces of dispatchers of electrification and power supply distances, service of power supply and technologists of situational centers is shown.

Keywords: railway, contact suspension, continuous monitoring, automation, software tools, AWP monitoring.

Transport Dimension of Russian- Egyptian Relations

Karapetyants I. V., Bazhenov Yu. M.

Pp 180 – 188

The authors of the article give a retrospective review of Russian-Egyptian economic and trade relations over the past centuries, draw historical parallels connected with the development of transport communications. A more detailed assessment concerns the second half of the last century and the present time. In the final part, the directions of cooperation in the field of transport, its technical part, vehicles and transport education are considered constructively and with projections for the near future.

Keywords: transport, Russian-Egyptian relations, retrospective analysis, cooperation.

International Activity of the University under Internationalization

Glazkov V. N.

Pp 190 – 195

Two significant dates are celebrated by MIIT, now Moscow State University of Railway Engineering – the 120th anniversary of its founding and the 70th anniversary since the beginning of the foreign students' study at the university. The article shows the dynamics of the international activity development of one of the oldest higher educational institutions of the country, the experience of cooperation with foreign universities, companies, the organization of joint programs for training of students and Ph.D. students, and conduct of research work. A number of recent examples assess the effectiveness and prospects of ongoing processes, partnerships and growing student mobility.

Keywords: transport, university, higher education, internationalization of training, cooperation, joint programs, international activity.

Prospects for a Single Educational Complex of Transport and Logistics in Kazakhstan

Kuanyshev B. M.

Pp 196 – 207

The author considers the problems of formation of a single educational complex of transport and logistics in Kazakhstan taking into account the factors of internationalization of higher education in the countries of the post-Soviet space, as well as those qualitative changes in the economy, corporate ties, research practice that creation of the Eurasian Economic Union brought with it. The directions of interaction of transport enterprises and universities in the sphere of training personnel and providing them with a transport and logistics complex are shown, with special emphasis on international cooperation, growing cooperation with European and Asian transport companies.

Keywords: education, development strategy, transport, logistics, personnel training, internationalization, EEU.

On the Role of Designing in Scientific and Technical Creativity of Children – Future Engineers

Zhukov V. V., Lyapina S. Yu., Tarasova V. N.

Pp 208 – 215

At the heart of the article is the thesis about the expediency of starting earlier not only the basics, but also many fundamental aspects of engineering design, literally from the preschool years, when a child first gets acquainted with the

children's construction sets, details of machines and mechanisms. Based on the experience of production of the domestic construction set AVToys, the authors of the journal created educational programs that allow them to conduct design lessons for children of different ages using mathematical logic and methods for programming model and game processes.

Keywords: engineering design, training, children's scientific and technical creativity, lessons, educational programs.

Nomenclature and System Problems of Applied Software

Koryagin N. D., Sukhorukov A. I.

Pp 216 – 221

The features of the nomenclature of applied software, studied in the training of specialists in managerial and economic profiles, are considered. The main systemic problems of this provision, characteristic for the higher educational process, are defined. The need for a comprehensive systematization of the list of applied software in accordance with the process approach to the formation of information competencies among graduates is substantiated.

Keywords: higher education, applied software, information competencies, process approach, educational programs.

Social Factors of Modernization and Training Programs

Zenina N. N.

Pp 222 – 231

In the article presented, the role of social factors in modernization of Russian Railways is considered, with special attention paid to improving the effectiveness of training of personnel of linear enterprises based on the strategic approach and the concepts of institutional economic theory. The strategic map, built for target tasks, is proposed to be used as a tool for formation of actual training programs, which should be correlated with actual production indicators.

Keywords: personnel education, schemes of institutional changes, social factors, modernization, JSC Russian Railways, training programs, strategic maps.

Educational Potential of «Masters of Business Administration»

Mezhokh Z. P., Lukyanova L. Yu.

Pp 232 – 238

The article reveals more than ten years of experience of the Higher Transport Business School in training business administration masters for transport structures, analyzes the methodological foundations and practices of applying a system approach

to training in business management, examines the results of implementing innovative business education technologies.

Keywords: MBA, transport company, continuous education system, Higher transport business school, MBA programs.

The Transport Inspectorate: Evolution of the Agency's Uniform and Insignia

Liseyenko V. I.

Pp 240 – 251

The article discusses the history and transformations of the Agency's uniform and insignia over the life of the Russian Transport Inspectorate (1990– 2004). The author links the evolution of agency heraldry and stylistic features of uniforms with the conditions of the new Russian statehood and market reforms.

Keywords: Russian Transport Inspectorate, insignia, uniforms, history, evolution.

What do you need: a flying car-transformer or a train-plane?

Sokolov Yu. I.

Pp 256 – 258

REVIEW OF THE BOOK: Macheret, D. A., Izmaikova, A. A. The economic role of innovation in the long-term development of rail transport. Monograph. Moscow, MIIT publ., 2016, 162 p.

The book examines the features of innovation-oriented development of rail transport, analyzes theoretical precursors for forthcoming engineering transformations, and assesses its prospects, taking into account innovative factors.

Keywords: economy, innovations, transport, railways, economic classification of innovations.