SERVICE CONDITIONS OF PASSENGERS ON SUBURBAN BUS STATIONS AND THEIR INFLUENCE ON THE TRANSPORT FATIGUE

page 4–7

The use of the index evaluation of transport fatigue of passengers with the task of organizing the transport of passengers in suburban traffic is discussed in the article and some results of our research in this area are given. The main aim of the investigation is to identify the patterns of influence of the conditions of passengers waiting for their transport fatigue. The use of statistical methods to assess complex objects allows to take into account the interests of both carriers and passengers during development of process the carriage of passengers on suburban routes. The method of estimating the transport fatigue of the passenger by determining the activity of regulatory systems of his body is discussed in the article. Results of field studies have established the influence of age of passenger and waiting time at the value of its index of activity of regulatory systems. The developed regression model of the change in the activity of regulatory systems of passenger allows to estimate the change in transport fatigue of passengers standing by waiting vehicles. This makes it possible to assess various design options of suburban bus station with accounting the technological process parameters and passengers. The research results can be applied by transport specialists involved in the organization of passenger transportation in suburban traffic.

Keywords: transport service, suburban traffic, transport fatigue, conditions of waiting, waiting time.

References

DEVELOPMENT OF NONLINEAR MATHEMATICAL MODELS OF TRANSPORT UTILIZATION RATE

page 8–12

A number of recent studies show that the organization and plan­ning of urban passenger transport consists in adequate calculation or prediction of labor movements between individual and public transport. Previously it was believed that most of potential mobility car­ried on transport and on foot. So today we have a need to define the function of transport utilization rate and urban passenger transport utilization rate on a combination of factors, using different percent­ages between the main groups of people. This article was grouped main factors influencing transport mobility, according to foreign and domestic research and obtained during the survey of urban residents. As a result of the research it was obtained data set using trans­port utilization rate and urban passenger transport utilization rate for all cities covered by the investigation at different ratios of proposed factors. Revealed set of factors influencing the transport mobility allows to fully estimate the distribution of urban residents travel between individual and public transport.

Keywords: population mobility, passenger transport, question­naire-interview, level of motorization, factor analysis.

References
Risks Management of Serial Projects' Transformation into Operational Activities

Implementing is the project activity analysis at the serial projects' transformation into operational activity risks management stage. The measures aimed onto this process slowing can vary significantly. From one side, the problem can be solved through the transformation velocity slowing. The article represents two approaches to prevent the essential transformation of serial project activity into operational one due to the lowering of diffusion velocity of absorbing layer into variative and creative ones. The suggested methods of preventing from undesired transformation constituted the basis of project decisions-making maintenance information system, used while managing programs including serial projects. Revealed is that such system application allows to arrange in respective order the interaction to the turbulent environment as the same time that to maintain the required share of projects' variative part while process running.

Keywords: serial program, project activity restoring, risks management, natural and artificial risks.

References

Influence of the Factors of the Aviation Enterprise's Management Environment on the Safety of Aviation Activity

International Civil Aviation Organization (ICAO) requires further improvement based on the risk assessment methods which focused on further quantity reduction of aviation accidents in the world. The modern approach gives us an opportunity to verify different objects and subjects of aviation as a single system. For this reason, today, it is very important to investigate the combined influence of inhomogeneous factors of internal and external management envi­ronment of aviation enterprise on the aviation safety and to identify all the risk factors.

The structural analysis of management environment of aviation enterprise was carried out. And, as follows it from the analysis, inhomogeneous factors which influence the aviation activity were classified and formalized:

- factors of internal management environment of aviation enterprise (goals, tasks, structures, technology and personnel);
- factors of external management environment of aviation enterprise of direct influence (consumers, competitors, partners, laws and authorities);
- factors of external management environment of aviation enterprise of indirect influence (economic situation, progress in science and technology, political factors, sociocultural factors, international events).

Hierarchic composition of priorities is based on the example of «Technology» — factor of internal management environment of aviation enterprise.

Set-theoretical approach was suggested in order to generalize the inhomogeneous factors of management environment of aviation enterprise. It allows to take into account structural hierarchical pat­tern, inhomogeneity, dynamic instability and to define conditions for their estimation.

The variables of significance were obtained with the help of expert estimation. The variables show the influence of parameters of factors of internal and external management environment on aviation safety. It was determined that the aircraft performance characteris­tics among the parameters of factor of internal management environment «Technology» have the greatest influence. The level of vehicles, buildings and constructions dilapidation as well as technological operations on airport servicing have the lowest influence.

The value of multiplicative function of estimation of parameters of factor of internal management environment «Technology» was obtained while aviation enterprise examination.

Estimation method of influence of inhomogeneous factors of management environment of aviation security will be applied to the «Passports of aviation safety». The passport will be used by the State Aviation Service of Ukraine for the quantitative evaluation during audits aviation companies.

Keywords: risk factors, management environment, decomposi­tion, hierarchy analysis, experts' opinions.

References
The work is devoted to the issue of optimization of basic technological processes in beer production. A causal-target and factor-target analysis of the technological complex of the brewery was made, taking into account the mutual influence of the individual processes. We used the methods of factor analysis and cognitive modeling, which allowed to determine the set of attributes, flows, factors, life conditions of the brewery as an object of control and to form the structure of interaction between objects and factors. Factor-target analysis of the system was implemented on the basis of the expert survey using multidimensional scaling method for the further development of the scenario control system of technological processes in beer production. A causal-target and factor-target diagrams for the process of brewing are given. The studies will help to better define the primary and secondary factors affecting the quality of the final product and resources usage. Scenario control system of beer making process will be established on the basis of the obtained data.

Keywords: optimization of beer production, factor analysis, situational changing, Ishikawa diagram.

References

OCCURRENCE OF NONLINEAR EFFECTS IN THE SUSPENSION OF FLOATING GYROSCOPE

It is built the refined model of the elastic interaction of penetrating acoustic radiation with float gyroscope to detect non-linear effects of resonant type in the suspension at the operational use of the gyroscope.

An application area in suborbital and atmospheric hypersonic technology at forming initiation of the resonance overlap in the suspension of gyroscope, leading to the onset of the «acoustic transparency» of the body.

The obtained results can serve as the basis of decision-making in the selection of design models of investigated effects from the perspective of pending outline of wave size in hypersonic flight operating conditions and ensuring the appropriate choice of impedance of the body material.

Keywords: float gyroscope, nonlinear effects, resonance overlap, design models.

References

CRITERIA SYSTEM OF FORMATION OF SPECTRAL CHANNELS OF MULTICHANNEL RADIATION THERMOMETER

Today, methods for measuring the radiation temperature depending on the number of spectral bands that used for their implementation can be divided into single-band and multi-band. Development of spectral system of measurement of radiation temperature allows for a more detailed study of the processes occurring in the near-surface layer of the air.
of multi-band methods is perspective for measuring radiation temperature because their use is aimed at reducing the methodical error of measurement of radiation temperature through the use of spectral information of radiative properties of the object. For its current implementation it is actual the development of multi-radiation thermometers with multiple spectral channels. To implement the multi-channel methods by multi-channel radiation thermometers it is proposed set of criteria for the formation of spectral channels: criteria for forming signal of separate spectral channel; criteria of relative position of spectral channels; criteria for selection of spectral channels, depending on the method of multi-channel radiation thermometer. Requirements for the implementation of these criteria are formulated.

As a result, we can say that requirements based on defined criteria are formulated for spectral bands of radiation thermometer and determined the optimal parameters of spectral channels of multi-channel radiation thermometer used in a spectral and temperature range and implements appropriate methods for measuring the radiation temperature. The implementation of these requirements together optimally determine the parameters of spectral channels of multi-channel radiation thermometer, which operates in a spectral and temperature range and implements appropriate methods for measuring the radiation temperature.

**Keywords:** multi-channel radiation thermometer, multi-band measuring methods of radiation temperature, infrared radiation.

**References**


**DEVELOPMENT OF OBJECT MODEL OF THE GENERALIZED CONFIGURATION MANAGEMENT PROCESS IN PROJECT MANAGEMENT**

Almost inevitable changes in external and internal environment of the project leads to the problem of consistency support the project and its results, i.e. the product of the project. The essence of the problem lies in the fact that the lack of control over changes to the object, the values of the characteristics which cause the values of the characteristics of other objects can lead to mismatch of characteristic values of dependent objects. Because of this mismatch may be exceeded or completion dates of the project budget. In this investigation it is developed a mathematical model of the object of the process of configuration management — the model of controlled object. A feature of this model is its versatility in relation to the kind of object. So, using the presented model, it can be formalized both tangible and intangible objects controlled by the process of the configuration management. The underlying concepts of configuration management sector are mathematically described. Such concepts are: characteristics, current and consistent state characteristics, specifications change, consistency relation, object, current and consistent state of the object, changing the subject. It is identified and described the mathematical object — the object consistency map, which is a directed graph built on the binary relations, reflecting the ratio of consistency between the characteristics of the controlled object, and those characteristics that affect the consistency of the object. The results can be used to develop a mathematical model of configuration management of an object and its further optimization for efficient implementation.

**Keywords:** configuration, configuration management, object, project, process, optimization.

**References**


**STRUCTURAL MODELING OF THE PRODUCTION QUALITY AS A MULTIDIMENSIONAL OBJECT OF MEASUREMENT AND CONTROL**

The structural-analytical models of product quality as a multi­dimensional process of evaluation, measurement and control are developed. The product quality is represented as a multi-factor, multi-criteria and multi-parameter estimation object. This structural formalization of quality demonstrates the multidimensional qualities: comprehensiveness due to a set of environmental factors; multicriteria­ity due collectively evaluated quality criteria; multiparameter information models that describe the relationship between the factors
and evaluated criteria. The developed models allow us to establish the relationship between the structural elements of the formation of the product quality.

The advantages of neural network modeling to quantify and data quality assessment are proved. Using the level of formalization of quality control processes based on advanced intelligent technologies allows creating a computational and experimental base of automated problem solving of information quality and reducing the cost of development, testing and manufacture of product.

**Keywords:** product quality, multi-dimensional, structural modeling, process of quality evaluation, information support.

**References**


**STRESS RELAXATION OF PVC-O PIPES AT THE DEVICE FOR MANUFACTURING PVC-O PIPES**

**page 51–55**

PVC-O pipes are the best solution for use in water supply networks operating under high and medium pressure, irrigation systems, fire suppression systems and pump systems, as well as in other areas. So we should create a equipment for making such pipes with providing optimal process parameters.

Established equipment receipt of polyvinyl chloride pipe, consists of:
- Device-drawn tubes;
- A device for forming a second outer diameter;
- External calibration device diameter pipes.

As a result of researches the optimal values of process parameters are made such as speed-drawn, temperature of the pipe that leads to the relaxation of stresses in the PVC-O pipe, when it is made; it is determined that stress relaxation in the pipe in the production of PVC-O pipes is faster with minimal speed of haul-off, so use of vacuum bath after a conical mandrel is not necessary, but using the fact that the rate of release of pipes should be sufficient to industrial scale, of course vacuum bath should be applied.

This study is useful in that project organization guided by research data can to design the minimum required equipment for the manufacture of PVC-O pipes.

**Keywords:** polymer material, PVC-O, PVC pipes, PVC, stress relaxation, speed drawing, strain gauges, sensor, temperature.

**References**


THE JUSTIFICATION OF NATIONAL TECHNICAL REGULATION SYSTEM AND ITS TRANSFORMATION INTO EUROPEAN SYSTEM

page 56–60

The national technical regulation system to improve its efficiency in the transformation to the European system is reviewed and analyzed in the article. The requirements of the Directives of New (standardization) and Global (certification) approaches to strategy harmonization of national technical regulations are analyzed. During the study and analysis it is found that the technical regulation system in Ukraine is more complicated, inefficient and binding, it differs significantly from certification, standardization of the European system. The main barriers to full integration of Ukraine into the international economic system are also defined. Requirements of Directive 2006/42/EC, which regulates the design, construction, conformity assessment and placing on the market of machines and mechanisms are considered. The transformation of the national technical regulation system will ensure the elimination of technical barriers to trade between Ukraine and the EU by establishing a mechanism of self-regulation of a single European market, increase the competitiveness of domestic industry in the domestic and foreign markets, expand the boundaries of marketing, and also improve the quality and reduce the risk in relation to consumer usage of this product. The proposed strategy of harmonizing national technical regulation system to the European will improve the effectiveness of the system, promote the development of the national economy and enterprises, improve the competition, ensure consumer protection and eliminate unnecessary technical barriers to trade.

Keywords: information, Ukraine-European Union Association Agreement, technical regulation system, European standards (EN).

References


