CONTENTS & ABSTRACTS

Nizhegorodtsev R.M., Yaroslavskaya D.I.

The paper examines key institutional problems related with adverse selection in contemporary markets. The reasons evoking adverse selection, its consequences, opportunities and methods to control the situation and, at the best, to overcome the adverse selection are discussed.

Baranov V.V., Matrosov V.M.

A utility model determining a priori preferences on control alternatives and a model of risk arising while selecting among the alternatives of situation diagnostics are built. Both are intended for aging systems control applications.

Kochkarov A.A., Salpagarov M.B., Elkanova L.M.

The phenomenon of destruction of information, power, transportation, and communication systems with compound structure is investigated. A discrete (graph-theory) model of system destruction phenomenon is offered. Various criteria (tonal destruction criterion, components criterion, connectedness criterion, diametrical criterion) of system failure under destruction are proposed. The scenarios of system destruction with different epicenters are examined.

Devyatisil'nyi A.S., Kislov D.E.

The paper offers a numerical technique for analyzing the mathematical correctness of a number of problems based on a formulated and proved theorem about the localization of spectral portraits of 2 close-in-norm linear operators. With a case study of near-to-stationary orbits determination, the efficiency of the technique's application in satellite navigation is shown.

Guzairov M.B., Il'yasov B.G., Gherasimova I.B.

The expediency of investigating complex systems as ordered collections of elementary systems in triad form is discussed. The paper shows that some processes related with goal attainment or getting knew knowledge can be represented as an heuristic scheme of sequentially connected triads.

Kuznetsov A.V., Mandel' A.S., Tokmakova A.B.

A model of a controllable queuing system is investigated. The number of service devices in a multiserver queuing system is used as controllable and dynamically optimized parameter and can be chosen as a function of time-varying input process intensity. The time variation of incoming flow intensity is a discrete time finite-state Markovian chain.

Stolbov V.Yu., Ghitman M.B., Fedoseev S.A.

The structural stability principle for a hierarchical multi-scale model of a compound production control system is proposed. The sufficient Hadamard stability conditions are formulated, and, on their basis, the number of necessary structural levels and the degree of model uncertainty on each level can be determined. The comparison of JIT and MRP modern enterprise resource planning and management systems is included.

Buyanov B.B., Lubkov N.V., Polyak G.L.

The dynamics of forces strengths of two combatants in a long-term conflict is examined. Based on average statistical casualties for some earlier period, a model is based enabling the prediction of forces strength subject to casualties and bringing reserves into action.

Bakanova N.B., Vishnevsky V.M., Semyonova O.V.

A mathematical model of mail delivery processes is developed. The models allows to estimate the efficiency of automatic delivery notification software and other performance parameters related with timely mail delivery in large organizational systems.

Lebedev V.N., Kurako E.A., Moskalkov V.E., et al.

The problem of managing the protected access to remote databases under enquiry system flexibility, security and guaranteed deliveries in modern distributed information systems is discussed. A method to solve the problem based on the separated inquiries is offered. Each separated inquiry includes a fragment of data management and a fragment of access management. The method's mechanism is described and the language structures of fragments are presented. The comparison against other methods is included.

Danilova S.A.

The paper offers an approach to rational planning of aperiodic task streams based on expert information and fuzzy derivation algorithms.

Kulida E.L.

A technique is proposed enabling to automatize training and examination process and to create and edit training exercises in process of training system operation.

Muromtsev Yu.L., Tyurin I.V.

The paper discusses optimal control problems of energy-intensive devices and the ways to overcome them. An informational framework for solving a set of optimal control problems for industrial plants is considered. Application examples are included.

Bezrukov N.S., Yeremin E.L., Perelman Yu.M.

A computer-based system for bronchial asthma diagnostics and obstructive lungs disease on isocapnic cold air hyperventilation and rheoencephalography characteristics is offered in the work. The diagnostic system is implemented on the basis of a neuro-fuzzy network.

Zhevnerov V.A.

The paper presents a method developed for the characterization of queuing systems with semi-Markovian functioning processes. The method is applicable for any system characterized by different techniques as well as for some other system types. Its application is typically less laborious.

Kotlyarov I.D.

Based on the idea of probabilistic net present value, the a mathematical model is built of decision-making process in case of selecting between franchise acquisition and establishing an independent enterprise.