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THEORY OF CONTROL IN ORGANIZATIONS AND OTHER ORGANIZATIONAL 2

Burkov V.N., Goubko M.V., Korgin N.A., Novikov D.A.

The paper analyzes the place of theory of control in organizations (historically originating from the theory of active systems and being an extension of the latter) within a system of contemporary management and organizational studies. A unified system of classifications is defined to compare different fields of organization studies, briefly list and classify modern schools and theories that investigate various problems of management and organizational control, compare the theory of control in organizations with other theories in terms of the chosen system of classifications.

Keywords: control science, organizational system, management, systems analysis, classification of sciences.

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Barseghyan V.R.

The paper considers mathematical model of linear compound systems control, described by different differential equations on different time intervals and by some finite conditions for continuation of compound systems motion. Analytical form of compound systems motion is constructed; the properties of motion and geometrical structure of attainability domain are investigated. Necessary and sufficient conditions for complete controllability are formulated. The method of solution of compound systems control problem and the way of solution of optimal control problems are suggested. Existence conditions for program control and motion are formulated.

Keywords: compound systems, control, complete controllability, optimal control, attainability domain, continuity of movement condition.

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Vassilyev S.N., Aleskerov F.T., Ivanov A.A., Yakuba V.I.

Analysis of problems of utilization of oil associated gas is given. Method for optimal distribution of expenses to laying of gas pipeline, taking into account a financing from oil companies and possible participation of government, is proposed. A multi-criteria model for selection of optimal alternative of utilization of oil associated gas is given. Software is made implementing the developed algorithms.

Keywords: associated petroleum gas recovery, gas pipeline, multi-criteria choice, mechanism design, scenario analysis.

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Nedovesov M.V., Rudenko Z.G.

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Keywords: discrete optimization, mathematical programming, project management, portfolio project management.

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Dranko O.I.

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Keywords: business value, financial forecasting, cash flow.

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Ougolnitsky G.A., Usov A.B.

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Keywords: corruption, extortion, capture, compulsion, impulsion, hierarchical system.

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Karavay M.F., Podlazov V.S.

The paper considers the technique of design of 1-expanded block-diagrams which are the extension of symmetric block-diagrams studied in combinatorics. The definition of 1-expanded block-diagram is given, the algorithm of their design and application for construction of distributed full switches as «ideal» system area networks of parallel multiprocessor computer are considered.

Keywords: massive parallel multiprocessor computer, ideal system area network, distributed full switch, nonblocking networks, self-routing networks, arbitrary permutation of data packages, symmetric block design.

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Lukinova O.V.

Computer methods of formation of list of purposes of safety of projected system of information protection of the company's automated business processes are considered. The technological environment of business processes is represented by OSE/RM (Open System Environment/Reference Model) model.

Keywords: complex security system, object of protection, Open System Environment/Reference Model, business process, estimated criteria of security.

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Pyrlina I.V.

The paper presents the results of the study conducted to identify criteria of efficient information system (IS) with service-oriented architecture (SOA) realization and proposes a ranking method to evaluate SOA information systems using a set of architecture quality criteria. The method is used to compare seven SOA projects and ranking result for SOA efficiency of the projects is provided. The choice of SOA realization project depends on the following criteria groups: IS organization, SOA guidelines and change management, processes and business services readiness, risk management and mitigation. The last criteria group was analyzed on the basis of projects statistics.

Keywords: multicriterial ranking method, service-oriented architecture, SOA operational risks, efficiency criteria for IS architecture, projects ranking.

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Eliseev V.D., Kljuev E.D., Petrin K.V., Teryaev E.D.

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Keywords: director control, steering wheel, human-operator, plane.

ANOTHER NOTE ON THE INCORRECTNESS OF THE ANALYTIC HIERARCHY PROCESS 75

Podinovski V.V., Podinovskaya O.V.

In authors' previous paper published in 2011 in «Control Sciences» journal one example of a bi-criterion decision analysis problem demonstrating that the use of Analytic Hierarchy Process (AHP) may lead to a clearly erroneous result is given. However, the author of another paper published in 2012 in the same journal suggested that he found an error in our use of AHP and, consequently, our criticism of AHP is unsubstantiated. In this new paper the authors show that there was no mistake in the use of AHP in their original counter-example, and provide two further counter-examples that support their original conclusion.

Keywords: multiple criteria decision making, analytic hierarchy process, descriptive and normative approaches, ratio scale, priorities of variants, measurement theory.

CONTROL SCIENCE ON THE WAY OF CREATING THE GENERAL THEORY OF CONTROL OBJECTS IDENTIFICATION (On the basis of IX International conference SICPRO'12 materials) 79

Some scientific aspects of IX international conference «System Identification and Control Problems» are considered. These aspects basically reflect the current tendency of transformation of scientific knowledge on control objects identification in the general theory of identification. The brief review of themes of the conference and the contents of some reports is presented.

Keywords: system identification, general theory of identification, engineering practice, conference, review.