ABSTRACTS

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ONTOLOGY OF DESIGNING - TERRA INCOGNITA?

Ontology of designing is considered as a technology of a special kind activity organization focused on development and implementation of design decisions both in the field of material, and in the field of the social world. First of all, enterprise ontology is directed on creation of models of the organization of activity on tasks, products and territories. The special role in this case is assigned to enterprise classifiers and vocabularies, which are a basis of a corporate ontology repository. At the end designing of enterprise activity in our understanding is reduced to well ground technology of creation and implementation of BEOM ontological model.
Keywords: ontology of designing, intellectual manufacturing, enterprise ontology, ontological model of enterprise BEOM, corporate ontology repository, system of inheritance of experience QuaSy.

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PROCESSES OF INTELLIGENT SOFTWARE CONTROL

The article describes new ideas of intelligent software control. The background of this research is discussed. The control system of intelligent software structure is determined. The work provides the classification of control tasks. General problem-independent and problem-oriented mechanisms of interactive, automated, and automatic control for information resources (ontologies, knowledge bases, and data bases), tasks solvers, and user interfaces of intelligent software are introduced. The research specifies problems and possible ways of their solving. The article declares results obtained to date.
Keywords: intelligent systems, ontology, knowledge base, solver tasks, the user interface.

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COMPLEX ONTOLOGY OF RESEARCH DESIGNING OF MARINE DYNAMIC OBJECTS

In the work the problems of the complex ontology in the dynamic structure of research designing of marine vessels and facilities of ocean development intelligent system are discussed. The conceptual model provides the designing of an ontology of seaworthiness in the complex dynamic environments due to nonlinear interaction of the objects with wind and wave disturbances. Domain ontology is based on the semantic model designing and analysis. The objects in the model are systemised on the basis of functional properties that belong to the class hierarchy. The relations define the system structure, and the elements identify the nodes function in the system. A formal model and the hierarchy structure of the ontology are shown within the paradigm of information processing in a multiprocessor computing environment. A fragment of the Semantic Web that determines the physical effects and trends of the domain is given in the work. In the analysis of emergency situations that occur in marine dynamic object exploitation, the functional elements of the knowledge base implement the dynamic structure, «Fields of Knowledge» and «Knowledge pyramids». Particular attention is drawn to the formalisation of the domain when dealing with navigability under the conditions of uncertainty and incompleteness of the initial information.
Keywords: ontology, dynamic object, seaworthiness, research designing, dynamics of interaction.

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THE OPTIMAL DESIGN OF THE COMPLEX TECHNICAL OBJECTS USING THE ONTOLOGICAL APPROACH

The problems of automation of the complex technical object design, e.g. the aircraft, are studied. The main stages of the modern aircraft design using the computer information technology are considered. The optimal concept of aircraft design is presented by using the ontological approach and principles of analysis, decomposition and synthesis. In the article the data resulting from the design in CAD/CAM/CAE-systems at the stage of the objects allocation mock-up creation is used. Moreover, weight of the aircraft is taken into account according to the concept stage of the aircraft design and based on the data from previous stages. Ontological approach simplifies the process of optimal design, allows solving the basic problems of the modern design during the creation of the complex technical object, and helps coordinate simultaneous work of designers.

Keywords: complex technical object, the optimal design, ontology, decomposition, synthesis.

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THE DESIGN OF LEGAL ACTIVITY: THE CONCEPTUAL STAGE

The article considers the methodology of legal activity. In particular, it describes the conceptual design stage of the cycle of legal activity, formulates the approaches to the definition of the main contradictions of the problems, their interdependence and congruence. The work discusses goal-setting technology, including the situations of uncertainty needs of the client and of uncertainty of the legal ways to resolve the main contradictions. The relationship between the need of a subject of legal activity and legal means as levels of goal setting is determined. In the article the criteria of legal activity, including the conditions under which the legal activity can be considered to be effective are defined.

Keywords: design, development and design stages, legal activity, methodology, technology, problem situation, definition of objectives, criteria of success of legal activity.

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FUTURE OF THE UNIVERSITY: ONTOLOGICAL APPROACH. PART 1: HISTORY, FORECAST, MODELS

Ontology of designing as a scientific direction is based on the results of project activities in various fields. This article presents a research of the entities of the "university" domain. It briefly shows the history of formation and development of the university as an important element of social and state system of civilization. The work identifies the properties and relations between the investigated entities. The analysis of the expert assessment of the future forms of higher education in Russia as well as the analysis of models and strategies of the university development are presented. Some examples of project-based education development in the higher education institutions of Russia are given. The research provides the estimation of the virtual university of the future concept realization.

Keywords: forecast, history, university, ontology, design, project learning, self-organization, the virtual university.

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ARTISTIC CONSCIOUSNESS IN MODELLING OBSERVABLES AND CONCEIVABLE SPACE

The article considers the problem of purposefulness and expediency in nature and consciousness activity, the correlation between different forms of substance, accidentness and natural regularity, dynamical chaos and harmony in the development of substance. The theoretical idea of "humanity existence and principle of anthropology" is considered; the problem of the main ways of consciousness activity is set. The article provides the characteristics of living substance and consciousness as its form, which is able to estimate the world phenomena and to create one harmonious space; it also considers the notion of time as the factor of substance development.

Keywords: dynamic chaos, isomorphic and allotropic properties of matter, definition of objectives and determinism, entropy of the system, correlation systems.