

## TOWARDS MODELING OF COMPREHENSIVE ASSESSMENT FOR LICENSING IN HIGHER EDUCATION (p. 4-7)

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One of the main management problems in higher education establishment (HEE) is comprehensive assessment of its resources, which includes evaluation of their quality, performance and regulatory requirements satisfaction.

The given work is devoted to the following problem: the evaluation of resources with regard to licensing requirements fulfillment.

The goal of this research is to formalize and build mathematical models of resources assessment with respect to licensing requirements fulfillment. These models have to define the appropriate data processing methods of resources comprehensive assessment supporting licensing process in the university. In this work we consider the problem of comprehensive assessment of university's resources for educational process (REP). The REP is a collection of separate resource elements (REs). A RE is defined as anything that is necessary to organize students' learning, for example, it can be a classroom, a computer or a teacher. It is suggested to formalize this problem from three points of view: evaluating existing resources with respect to licensing requirements, finding maximal licensing volume provided by the existing resources and finding the required resources for the targeted licensing volume. The case study of these problems solving considers the evaluation of information and material resources.

The formalization of these tasks in the form of appropriate mathematical models allows to make the next steps in the realization of information technology of licensing process support. These models and algorithms will form the basis for the development of information system of university resources assessment for licensing process support

**Keywords:** comprehensive assessment, mathematical model, licensing problem, higher education resources

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## BASIC OBJECTS OF MARKETING IN PROJECT ACTIVITIES (p. 8-12)

Svetlana Onyshchenko, Tatiana Bernevek

The article identified the main types of a project product from the point of view of a business level that is necessary to determine the specificity of the project marketing. As such objects of marketing - variants of the project product we have singled out: a product, a combination "product-market segment," a commodity group, a strategic business unit, a company. We have analyzed the relation "product life cycle - project-organization" and received a generalized representation of this relation. It was determined that the project product, generally speaking, may be smaller or longer than the duration of the project.

It was determined that the project marketing in terms of objectives is wider than the marketing of goods, commodity group, strategic business unit and company. It was concluded that the specific project marketing objectives are distributed according to the stages of the project life cycle and related to the areas of knowledge of management of projects (to the greatest extent with the management of the content, timing, costs, risks) and should take into account the specificity of the current marketing activities of the enterprise, which implements the project

**Keywords:** marketing, project, project product, life cycle, strategic business unit, goods, objectives

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## MODELLING STRUCTURES OF COMPUTER NETWORKS (p. 13-19)

Natalia Ivanuschak, Vladimir Pasichnyk

The object of research is computer systems, the processes of evolutionary dynamics of which are described on the basis of the concepts of statistical physics of complex networks. Computer networks are not static, therefore, in order to understand the dynamics of their development, it is necessary to discover the principles of their evolution.

The present study presents the model and the formulated rules for the structuring of complex computer networks with the application of the graph theory apparatus.

The algorithm of modeling and the adequacy of description by means of the real structure model have been illustrated by the generation of stochastic graph with the application of statistical characteristics of real computer networks, such as "BV-Star & FoxNet", "The City Cable Television" and "DSS-Group" in Chernivtsi. The empirical data as well as the original method of network generation for the assigned law of degree distribution of nodes enabled us to carry out network modeling in the environment «Processing» and perform the comparative analysis and systematization of the main characteristics.

Performed estimations, the utilized modeling algorithms, and the validity of applying mathematical tools enable us to make a conclusion about the accuracy and adequacy of the application of the suggested model to real structures. The proposed algorithms of modeling can be applied in solving the problem of the stability of scale-free computer networks against directed hacker attacks and the distribution of computer viruses

**Keywords:** computer networks, stochastic graph, statistical modeling, targeted attacks, security model

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### ANALYSIS OF INFORMATION TECHNOLOGY DECISION SUPPORT FOR HEALTH PROBLEMS (p. 19-23)

Oksana Mulesa

Design and creation of information-analytical systems to meet the challenges of health care is an urgent problem nowadays. One of the directions of the state policy in the field of health care is the prevention and fight against HIV / AIDS. This policy provides a solution of several problems, including the problem of isolation of risk groups of HIV / AIDS from the general population, in particular the group of women who provide sexual services for a fee. The article proposes an approach to the design and creation of information-analytical system to assess the number of persons belonging to the risk groups.

It defines the principles according to which the decision support system should be constructed. It was determined that its fundamental part should be a database, the design of which is carried out in

accordance with the principle of openness. The components of the database system are static and dynamic data.

The article also presents an overview of problems that arise in the process of designing of information-analytical system. In general, it describes the analytical set of problems of the system, i.e., a set of implementation of models and methods such as prior data preparation and actually problem solution

**Keywords:** information - analytical system, risk groups of HIV/AIDS, principles of information-analytical system construction

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### AUTOMATED SYSTEM FOR THE RESEARCHING OF IP-CONNECTIONS QUALITY (p. 24-29)

Andrii Oliinyk, Maksym Golovko, Eugene Fedorchenko

The work is devoted to the issues of the researching of ip-connections quality. Recently, IP-technology becomes widely spread at the market of communication services. Role of communication quality influences the performance of corporate information systems and services. Due to the great diversity of packet services, families of protocol stacks of packet commutation and implementation methods in the equipment of different manufacturers it becomes difficult to create the normative basis in the field of metrology IP services and certification of measuring equipment. The aim is to create a hardware-software system for managing SLA (Service Assurance Agent). Designed multifunctional hardware and software system for managing SLA which has the large functionality of expensive measurement equipment, and due to the software application it has a huge advantage, lower price. Required measurements properties are realized thanks to the use of a hardware platform that provides the necessary monitoring services SLA accuracy and reliability of measurements. The usage of probes software components allows to quickly change the functionality of the probes on demand without changing hardware platforms, providing the reasonable rate of changes. Measuring mechanisms are based on current guidelines and standards in the field of metrology and qualimetry

**Keywords:** SLA, quality, packet loss, One-Way Delay, RTT, C++, RFC, CLI, jitter, IPDV

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**3D MODELLING OF REHABILITATION CORSET WITH USE OF POWERSHAPE DELCAM (p. 30-33)**

**Pavel Nosov, Andrew Yalansky, Vladimir Iakovenko**

Scoliosis begins in childhood or early adolescence and develops gradually with growth of the organism. After growth is finished the curvature of the spine still remains. Corsets have undergone several changes over the years in shapes and sizes, materials used, etc. However, the principle of operation remained unchanged. To improve the results of prevention and treatment corsets have to expand their opportunities to create a new generation of computerized corsets that will maximize efficiency and versatility, affordability and will allow ability to influence the individual patient model. The first step in the creation of design of a corset is the creation of a 3D model segment in the program of automated design Delcam Powershape. The design must correspond to all the above requirements: small size, strength and large internal amount, modification, fixation of a body. The basis for the future is solid cast metal construction, in which all sensors and modules are installed. The design consists of bonded segments, being able to move in all three planes of space with the help of articulated fasteners.

This model offers a new approach to the diagnosis and treatment of human posture. Versatility and ease of use makes it accessible, and ability to modify and improve methods allow you to create new and innovative courses of treatments

**Keywords:** corset, 3D modeling, treatment posture, rehabilitation, an accelerometer, an artificial spine, expert system

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**ELABORATION OF PROJECT WORK PLAN (p. 34-38)**

**Myroslava Gladka, Olga Khlobystova**

The article justifies the necessity of the elaboration of project work plan in the course of automation of an organization. The approaches used in the development of project plans were considered. The necessity of the situational approach when elaborating a plan for the implementation of information system was proved. The main elements of the project that affect the quality of its implementation were singled out.

The application of the method PERT, when planning the terms of the project, and Gantt charts, when constructing sequence graph of work performance, was explained. Methods of improvement of the plan of project works and resource management at all stages of enterprise automation were considered. During the planning of the project, attention was focused on the development of schedule, where the works performed on a scale of one implementation conform over time with the possibility of their provision with different kinds of logistical and labour resources. When planning the use of resources for the project it is necessary to take into account that the construction of the project structure provides forecasting of expenditures for each of the works with specification of restrictions in the form of general (common) plans.

The resource planning of the lower stage is the initiation of amendments and adjustments to the overall plan. It was proved that the use of the plan had positive effect on the outcome of implementation

**Keywords:** project, management, improvement of a plan, management algorithm to plan, resources management

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**IDENTIFIED RISKS IN PROJECT TEAM SELECTION**

(p. 39-41)

**Yuriy Kharitonov, Olena Ielgina**

Under the current conditions one of the urgent problems in heat-and-power engineering sector in Ukraine is the problem of effective implementing the project reconstruction of local heat supply systems, which relates to a great number of risks determining the possibility of this implementation and the indexes of effectiveness of the corresponding projects and programs.

The analysis performed has proved that the comprehensive research which is related to the risk management while selecting the project reconstruction of municipal heat supply systems has not been done. Yet in the article, the solution of the problem of risks identification associated with choosing a project team for the project reconstruction of heat supply systems is presented. The solution of the problem is based on the generalized practical results of the project management reconstruction of municipal heat supply systems and the model of forming the project teams on the basis of "artifact" platforms.

On the basis of identified risks it is possible to complete the model of choosing the project team with the dependencies providing the assessment of the potential losses and to make pre-selection of the project team for the project reconstruction of heat supply systems

**Keywords:** project management, reconstruction of heat supply systems, project team, risk, risk identification

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**3D MODELLING OF REHABILITATION CORSET WITH USE OF POWERSHAPE DELCAM** (p. 42-45)**Oleg Kasilov, Alona Subotina**

The article discusses the development of the technology of conversion of bibliographic descriptions from the older formats into the current State Standard 7.1:2006 since there is no such possibility in the existing control systems of bibliographic information.

The main objective is to study the structure of bibliographic descriptions of different standards and to develop the principles of conversion of bibliographic descriptions into the current format, and the algorithm of the system operation for their preparation.

The use of modern automated means of processing of bibliographic information increases the efficiency, and reduces the large number of routine operations and the time spent.

The article examines the structure of bibliographic descriptions, compares and analyzes the differences in the State standards 7.1-84 and 7.1:2006.

This information is used to form the principles of the transformation on the example of the abstract of a dissertation. The presented method allows automating and improving the process of transformation from the old to the current standards. The method and the developed algorithm are not unique to the abstract, and can be used for other documents, with some modifications. It was proposed to use XML for the markup of bibliographic description on the basis of a certain set of rules.

The research results can be applied by bibliographers, librarians and others involved in the analytic-synthetic processing of information, and integrated into the national library systems or web-resources

**Keywords:** technology, bibliographic description, bibliographic information control system, preparation system of bibliographic descriptions

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**THE VALUE HARMONIZATION MECHANISM OF THE INDUSTRY DEVELOPMENT PROGRAMS**

(p. 45-48)

**Svetlana Leonova**

The article focuses on value-based management applied to the state development program. Program implementation remains inefficient due to imperfect value harmonization instruments. Common methods of balancing of the participant's interests (like corporate rates) cannot be used state program management. Relevance of the article is provided by necessity of using models and methods

of harmonization of stakeholder interests in the state development programs.

It describes an evaluation tool of program participant's interests. Discounted profitability index and minimum return on assets criteria were used as criteria of projects value balancing in the program. It is demonstrated two methods of taking into account the time value of money applying to the project evaluation criteria.

The designed model for harmonization the stakeholder's interests enables to determine the boundary conditions which require application of support measures to the project in order to balance its value. The research results can be applied to the management of state industry development programs

**Keywords:** value-based management, industry development program, discounted rates, harmonized value

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### SEMANTIC ANNOTATIONS SIMILARITY MEASURE TO COMPARE PROCESSES PROFILES (p. 48-52)

Olena Shevchenko

Improved method to calculate similarity measure for semantic ontological graph annotations is introduced in the article. Nodes of such a graph are concepts of problem area ontology and edges – relations among them. The method proposed can be used to improve synthesis of structural procedural program schemas based on semantic computing networks. Improved synthesis method takes into account not only computation relations among network components but their semantic annotation, that formalizes the aim of the software component.

By integrating such semantic annotations ontology into top level OWL-S ontology one can use introduced metric to discover or recommend web-service by their detailed profile and user's request

**Keywords:** semantic profile, similarity measure for semantic annotations, LCA, OWL-S

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### COST OPTIMIZATION FOR MARKETING IN ONLINE COMMUNITIES (p. 53-57)

Oksana Peleshchyslyn

Online communities in marketing provide to a company opportunities to interact with the outside world, to monitor competitors' activity and the state of an industry.

Active use of the online communities presupposes that representatives of companies participate in the life of the online communities to disseminate marketing information and tracking the reaction of society on company's activity. Thus, the accounting and control of resources are very important for marketing activities in virtual environments.

The article studies the structure of costs on activities of its members in the online communities. The influence of the chosen strategy of the online communities in marketing on the components of costs was analyzed.

The control of cost budget in the selection of the online communities for market specialists to participate there enables usage of the allocated resources, covering the major theme communities. To find the optimal allocation of human resources among sites of the online communities the mathematical model was built based on the estimation of labor costs for various types of work.

This model minimizes the cost of marketing activities in online communities

**Keywords:** online community, virtual community, marketing, marketing communications, labor costs, cost structure, costs optimization, processes modeling

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## FINANCING OF PUBLIC-PRIVATE PARTNERSHIPS: POST-CRISIS REALITY AND PERSPECTIVES

(p. 58-67)

**Natalia Litvinova**

In conditions of a usual state budget deficit, the public-private partnership has been acting as an inevitable alternative to finance infrastructure projects in the world.

Despite the considerable number of publications on the topic of PPP, they still have not fully covered features and prospects of raising capital, especially for the conditions of modern Ukraine. Based on the accumulated world experience, the article considers the structure and key elements of the system of financing of PPP, and analyzes the main trends and priorities from the perspective of involved sources and capital instruments. In addition, as part of this article we have evaluated a number of legal and financial possibilities of PPP projects implementation in Ukraine.

Therefore, the article indicates the need to modernize the domestic capital market and to overcome a number of financial and legal barriers

**Keywords:** public-private partnerships, project financing, international financial institutions, state support

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