Implementation of the Project Approach

Anisimov Andrei Vladimirovich

Electrotechnical University "LETI" SPGETU "LETI"

Saint Petersburg, Russia

e-mail address: avanisimov@yandex.ru

Abstract—**Automation is based on a structural approach. An overview of modern approaches used in the implementation of tasks, including modeling tasks. Modeling business processes using CASE tools. Formation of skills to solve professional problems. Methodology and technology of canonical design. Standardization and professional consortia. Design based on notation standards. Working with resources in conditions of heterogeneity of formats and interpretation of meaning in accordance with the characteristics of resources.**

Keywords-automation of design; design methods and tools; modeling of business processes; CASE-funds; pre-project survey; engineering of the design object; system analysis; standardization; professional consortia.

I. INTRODUCTION

Design automation in the framework of training provides for the development of methods of process analysis necessary for design; obtaining knowledge about processes. Acquisition of special knowledge and skills necessary to participate in the design, according to the composition, content and principles of the organization of information support used in design tasks. Using the acquired knowledge and skills to participate in specific practical development activities. The proposed material contains an overview of modern approaches used in the implementation of the tasks set, including modeling tasks. The field of application of modeling relates to knowledge management. The tools are based on the fundamental approaches of the subject area.

II. DESIGN METHODS AND TOOLS

Training from the perspective of design automation tools [1] should include the development of business process analysis methods. The acquisition of knowledge about information processes is based on the acquisition of special knowledge and skills necessary to participate in the design. As a result, the use of acquired knowledge and skills ensures participation in specific practical activities. It is essential to study the technology of project management. Technical means that ensure constant monitoring of the progress of organizational activities, the concentration of resources on solving specific tasks by the main existing ones in terms of composition, content and principles of organizing information support. The design is based on the choice of methods for modeling systems, structuring and analyzing the purpose and function of systems, and conducting a system analysis of the applied field. At the same time, it is necessary to study effective algorithms using modern technologies. During the training, it is necessary to formulate and formalize design tasks, conduct modeling of business processes and data using CASE tools. As well as choosing methods for modeling systems, structuring and analyzing the goals and functions of systems, and conducting a system analysis. Solving design problems using formulated technical and economic requirements. Design and technological activities are assumed to be the main type of professional activity. At the same time, knowledge and skills should also be linked to design and research activities.

III. TRAINING AND OBJECTS OF PROFESSIONAL ACTIVITY

Design automation as methods and methods of designing, debugging, production and operation of information technologies and systems is used in the fields of mechanical engineering, instrumentation, science, education, administrative management, business, management, etc., and is implemented in relation to enterprises of various profiles and all types of activities in the context of the information society economy. In relation to design and technological activity, the knowledge and skills acquired by students are oriented towards individual tasks within the framework of design and engineering activities.

The content of the discipline is focused on the formation of skills to solve the following professional tasks in accordance with the chosen main type of professional activity. The design of basic and applied design technologies involves the development of implementation tools. In particular, the development of computer-aided design tools provides for a pre-design inspection (engineering) of the design object, a system analysis of relationships. After that, technical design (reengineering), operational design, selection of source data for design, modeling of processes and systems are possible. A special role in the design is played by the calculation of ensuring safety conditions. The result is accompanied by the calculation of economic efficiency and the development, approval and release of all types of project documentation.

IV. METHODOLOGY AND TECHNOLOGY OF CANONICAL DESIGN

The concept of canonical design includes the composition of the stages and stages of canonical system design. The composition and content of the work at the pre-project stage. Survey methods have a formalized classification based on the classification of methods for collecting survey materials. This also applies to the forms of documents for the formalization of survey materials and the composition and content of work at the design stage, as well as the composition and content of work at the stages of implementation, operation and maintenance of the

project. The methodology and technology of the documentation system design allows planning and organizing project activities based on project management standards. The training provides the acquisition of project planning skills using standards in project management. These include organizations for standardization: ISO, IEC, ITU-T. Standardization in the field of information technology is provided by professional consortia such as IEEE, IAB, PMI, IPMA, Regional WOS, OG, ECMA, OMG, X/Open, NMF, OSF, Joint Technical Committee (JointTechnicalCommittee). Although, of course, in modern conditions, the most important source of standards is Rosstandart.

V. THE ROLE OF THE PROJECT MANAGER

The project manager carries out planning, scheduling, analysis of their implementation, evaluates results, provides information, manages various organizations, solves complex tasks and allocates resources in order to achieve a predetermined goal. The situation in which the project manager operates requires constant attention from him, since a significant part of his functions differs significantly from traditional ones. The project manager tries to complete difficult work by a certain deadline with limited resources and with the help of people whose main work may not be related to the implementation of this project. In addition, the project manager must have all the knowledge and information necessary to complete the project.

VI. PREPARATION OF THE PROJECT BASED ON MODELING

In modeling, there is a division of entities into classes and objects. The standard notation for modeling real-world objects is UML (Unified Modeling Language).as a first step in the development of an object-oriented program. It describes a single consistent language for defining, visualizing, constructing, and documenting artifacts. Developing a system model is creating a plan. The design is based on UML notation standards. The modeling language allows you to model concepts and underlies the development [2].

VII. RESOURCE APPROACH

Interaction with resources is based on a semantic description. The modern approach to access to resources is based on a semantic description. The task of data mining [3] is based on the annotation of knowledge specific to the selected field. The standard used in the implementation of data access is based on software metadata models. The scope of the model relates to knowledge management. The means of describing the data structure are based on the fundamental approaches of the subject area. Access to resources is based on models. To analyze resources, you need a way to describe their interaction.

The heterogeneity of formats makes it relevant to interpret the meaning of information in accordance with the resource under study. This approach is based on the organization of management, which facilitates the understanding of the description of resources. Technical capabilities for working with knowledge are necessary [4], first of all, for artificial intelligence tasks. Objects containing various types of knowledge are the intellectual space of an organization. From

the point of view of the approach to modeling such objects, an approach based on the ontology of the subject area is used. This approach allows us to describe the available knowledge using the advanced mathematical apparatus of artificial intelligence.

Description of knowledge is the main task of this discipline. The methods of representing and describing knowledge in this subject area can be divided into production models and semantic networks. The production model is based on rules for presenting knowledge based on conditions. At the same time, an exemplary suggestion is made for searching the knowledge base. The field of use of such models is industrial expert systems. The semantic network is built on the basis of an oriented graph with vertices representing concepts and arcs establishing relationships. In relation to the task of accessing resources, the semantic description of data sets is based on ontology dictionaries. First of all, we note dictionaries for the annotation of information about the origin. These dictionaries include information about licenses. Dictionaries describing the actual data provide data mining. It is in these dictionaries that data types and data set specifications are presented. In addition, there are ontology dictionaries for the annotation of knowledge.

VIII. CONCLUSION

The construction of a training system from the perspective of design automation tools is linked to the task of creating and distributing corporate knowledge, and is a continuation of the work [5] and [6]. Model construction and formalization are described using the concept of ontology. The tasks of accessing resources used to work in corporate information systems should be solved taking into account security when organizing remote access [7]. The training is based on regulatory documents and standards in the field of information technology.

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