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## INFORMATION SYSTEMS USE AT POLTAVA NATIONAL TECHNICAL YURI KONDRATYUK UNIVERSITY

**Aim** of the article is to consider the peculiarities of the use of modern information systems in the activities of higher education institutions. The essence of information systems and the tasks they can perform are revealed. The basic components of the parts that form the internal information base are determined. The directions of the introduction of information and communication technologies in the management and educational activity of an educational institution are considered. The dependence of the information system effectiveness on the correct strategy for the development, acquisition and use of software products is determined. The article describes the ways of developing and developing information management systems in a higher educational institution. It is proved that the information systems use is a prerequisite for the activity of a modern higher education institution, which will promote the adoption of sound strategic management decisions aimed at increasing competitiveness and creating an adequate and efficient infrastructure.

**Keywords:** systems, information systems, information technologies, automation, management.

### Introduction

Various types of resources are needed for the development of human society: instrumental, material, energy, as well as information. At present, there is a significant increase in the volume of information flows and this applies to almost all spheres of human activity.

The environment in which a person lives, studies and works has a significant influence on the formation of the individual. Therefore, the urgent problem for all higher educational institutions is it is necessary to introduce modern innovative technologies to create a modern informational educational and scientific environment. The university has information systems in which the student can at any time receive all necessary information for training, tutorial instruction and communication with colleagues. The university information systems correspond to the modern needs of the information society, the current state of science and technology development, educational standards and promote the formation of information and communication competencies of all participants in the educational process from the professor to the student [2].

**The research purpose.** Analysis of the peculiarities of the modern information systems use in the activity of the higher educational institution in order to create an effective infrastructure and its compliance with the strategic objectives of the higher educational institution. Identify the essence of information systems and the tasks they can perform. To study the main components that form the internal information base. Investigation of the importance of implementing information and communication technologies in the management. Determine the dependence of the effectiveness of the information system on the correct strategy for the development, acquisition and use of software products.

**Literature review/** In scientific literature there are many definitions of the "information system" notion. However, as the research shows, there is no single established and generally accepted definition. Depending on the need, in different cases, different thoughts are applied. Thus, in the economic encyclopedia E. Panchenko notes that the basis of information systems are information models that describe and regulate information flows in

management with the help of certain algorithms and procedures for the recording and processing information. According to V. Ponomarenko, the purpose of the information system is the production of information for the use by the management apparatus. Accordingly, it provides for the accumulation, editing, preservation, processing, generalization and specification of information.

I. Vovchak argues, if the definition of the term "information system" is to be based on a resource approach, the information system can be interpreted as a combination of means and methods of production, accumulation, transformation and use of information resources of the enterprise in order to realize the basic functions of management by users. The Czech researcher K. Kachir considers the difference in the data processing system from information systems, emphasizing the destination and purpose of their design. At the same time, he notes that the data processing system is designed to perform this function over the data that arose at the enterprise and are recorded in certain information media. In other words, this system is not conditioned by the ultimate goal of management - making the necessary management decisions [1].

### Research results

Information system is a set of organizational and technical means for storing and processing information in order to provide information needs of users.

Information systems exist from the moment of the society appearance, because at each stage of its development there is a need for management. The mission of the information system is the processing of information necessary for the effective management of all organization resources, the creation of information and technical environment for managing its activities. An information system can exist without the use of computer technology, it is a matter of economic feasibility.

In any information management system, the three types of tasks are solved: problems of situation assessment (sometimes referred to as problems of pattern recognition); tasks of transforming the description of the situation (calculation tasks, modeling tasks); tasks of decision-making (including optimization).

Information systems include: technical means of data processing, software and relevant personnel. Four components form an internal information base: means of fixing and collecting information; means of transferring relevant data and reports; means of information preservation; means of information analysis, processing and presentation. For a modern higher education institution (HEI) information is one of the most important components of management processes, because its production, transmission and consumption is a "foundation" for the effective functioning of all spheres of society's life. The result of any modern social institution activity, first of all - the education system, largely depends on the formation correctness and use of information flows [5].

Information system of a higher educational institution is a set of interconnected components that collect, process, store, distribute and analyze information that provides decision-making, coordination, monitoring and implementation of the organization's activities. Information refers to data that are presented in a particular form and have meaning and benefit for those who use it.

The effectiveness of the information system depends on the correct strategy of the development, acquisition and use of software products. Qualitative higher education should be focused on innovative technologies and products offered by companies - world leaders in the field of information technology. The use of home-made software products that require the constant technical support of developers and become morally obsolete even before their normal work can be get its act together.

A new qualitative stage in the development of education is possible only with the intensive introduction of information and communication technologies in the management and educational activities of a comprehensive educational institution. Such activity is conducted in two directions:

- implementation of information technologies in the management of educational activities;
- computerization of the institution educational process and educational work.

The first of these directions is in creating optimal conditions for automating work places of the participants in the educational process and their use of software, which will help to systematize the management work of educational institutions at all levels of the management system. The second direction is the testing and introduction into the educational process of electronic learning materials, the development and application of electronic support of training sessions, self-sustaining and educational work and test software tools.

The use of an integrated information system and modern information technologies in the educational process and in the management system as a whole can be considered from different points of view. On the one hand, it is the basis of the university's innovative management system, on the other hand, it is a means of creating conditions for the development of student's creative abilities, increasing the teacher's competence, individualizing the learning process, and ensuring the learning process quality. Innovation in the educational institution management based on information technology is a key mechanism that will create an advantage in

a competitive environment. In this direction, the main measures in the development of informatization is the creation of its proper and efficient infrastructure, the introduction of unified means of access to corporate data, the management improvement of all complexes of information resources, and also ensuring the compliance of the infrastructure with the higher educational institution strategic objectives [4]. In the structure of information systems of higher educational institutions one can identify a number of subsystems - both autonomous and integrated into the general automated control system of universities. There are the following subsystems:

- subsystems such as "electronic dean's office";
- the subsystem of the educational process supervisory control, including the functions of developing the schedules of training sessions;
- subsystem of methodological support management and a base of educational materials, which is intended to accompany educational and methodical documentation and electronic educational materials;
- subsystem of the research sector management;
- subsystem of paperwork, supporting the work of the office, archives, expeditions, etc.;
- subsystem "Cadre";
- accounting and planning-economic subsystems;
- library information system, which serves for accounting of library funds, search for users of literary sources, registration and satisfaction of quotes;
- remote control subsystem included in the educational portals software;
- subsystem of university engineering services support.

Typically, there are two ways of developing information management systems at universities: the creation of a single corporate automated control system or the creation and integration of independent programs that automate the activities of individual units or some management functions [3].

In the process of developing the informatization project for educational process management at the university it is necessary to take into account such features:

- a large number of workplaces, where computer equipment is periodically changed and operating systems are updated;
- considerable distance of users of the system located in different parts of the city;
- information is created in the system by a small number of "active" operators;
- information is used by a wide range of consumers (management staff, dean's and department staff, teachers and students, their parents) with different access rights;
- the need for a permanent adaptation of the information system to the educational process needs, which change as a result of the higher education system transformation.

There is a task to create an informational system topic for the Department of Chemistry of the Poltava National Technical Yuri Kondratyuk University. This information system should contain information about the history of the department and its staff composition. Also it has to provide information to students and entrants

about the teaching and research work of the department, methodological support and participation in conferences.

## Conclusions

One of the challenges faced by a modern university is to increase its efficiency, namely, a comprehensive action on the strategy, network infrastructure, organizational structure, management and payment systems, and the corporate culture of a higher educational institution. The construction, support and development of a unified integrated information management system of the university is an extremely complex and time-consuming process that should be consistent with the concept of the activity and strategy of the educational institution development.

The only solution to this problem is to automate the university activities and create an informational environment, which, on the one hand, provides access to the necessary, consistent and complete information when is essential for users, on the other hand, is an

essential tool for the university staff activities and the training of students. Such an information environment allows you to manage processes, data and people, that is, the information environment can be considered from the point of view of maintaining of the university life and as a management tool. At the moment, most of the universities use "partial" automation, that is, they computerize only certain business processes. It leads to duplication and loss of information, lack of data for operational analysis, loss of time for maintenance and maintenance of obsolete technologies, high degree of dependence on the human factor.

Thus, the experience of designing and practical application of the automated control system at a higher educational institution has shown that the innovative technologies implementation in the field of its informatization contributes to the optimization of the educational process and is an effective tool for providing high-quality training of specialists.

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### Використання інформаційних систем

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В статті описано особливості використання сучасних інформаційних систем у діяльності вищих навчальних закладів. Виявлено сутність інформаційних систем та задачі, які вони можуть виконувати. Визначено основні складові частини, які утворюють внутрішню інформаційну основу. Розглянуто напрямки запровадження інформаційно-комунікаційних технологій в управлінську та навчально-виховну діяльність навчального закладу. Визначено залежність ефективності інформаційної системи від правильної стратегії розроблення, придбання і використання програмних продуктів. У статті описано способи розробки та розвитку інформаційних систем управління у вищому навчальному закладі. Доведено, що використання інформаційних систем є обов'язковою умовою діяльності сучасного вищого навчального закладу, що сприятиме прийняттю обґрунтованих стратегічних управлінських рішень, спрямованих на зростання конкурентоспроможності та створення належної та ефективної інфраструктури.

**Ключові слова:** системи, інформаційні системи, інформаційні технології, автоматизація, управління.

### Использование информационных систем

#### в Полтавском национальном техническом университете имени Юрия Кондратюка

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В статье описаны особенности использования современных информационных систем в деятельности высших учебных заведений. Выявлена сущность информационных систем и задачи, которые они могут выполнять. Определены основные составные части, которые образуют внутреннюю информационную основу. Рассмотрены направления внедрения информационно-коммуникационных технологий в управленческую и учебно-воспитательную деятельность учебного заведения. В статье описаны способы разработки и развития информационных систем управления в высшем учебном заведении. Определена зависимость эффективности информационной системы от правильной стратегии разработки, приобретения и использования программных продуктов. Доказано, что использование информационных систем является обязательным условием деятельности современного высшего учебного заведения, будет способствовать принятию обоснованных управленческих решений, направленных на рост конкурентоспособности и создания надлежащей и эффективной инфраструктуры.

**Ключевые слова:** системы, информационные системы, информационные технологии, автоматизация, управление.