

IT-decisions for education

The introduction of new educational and information technologies in educational process and the formation of a single educational space are now the dominant tendencies determining development of an education system. Informatization program of the education system proclaims creation of a unified informational-educational space based on a unified informational-educational network. The effectiveness of the university administration and operation of high-quality learning management system can be provided only through a corporate information system, realized on the basis of the educational portal (EP) of the university.

The East Kazakhstan State Technical University named after D.Serikbayev (further EKSTU) offers the ready decision for automation of university management **the hardware-software system SPOTAL** representing the integration of two powerful subsystems: **Web-application - an educational portal “Dales of knowledges” and information software system “SPortal”**.

The educational portal «Dales of knowledges» is based on the modern information and telecommunication technologies and provides essentially new level of availability of education at preservation of its quality.

The main purpose **of an educational portal (EP) “Dales of knowledges”** is connected to support of hi-tech educational process and supplemented with the important functions capable salutarly to affect on the development of the uniform educational information environment. The educational and technological policy of the portal, and also its educational activity, are means for gradual and smooth introduction of spontaneous process of information in a channel of reasonable methodological and technological decisions.

EP allows to create the uniform educational environment at university and to provide its integration into the global educational space; to develop the platform for the electronic **training (e-learning)**; to expand the **availability and the openness of education**; to create an effective control system of university, the account and the reporting; to expand the **availability and the openness of education**; to provide the raising of rating of the university.



The system has **bilingual support in Kazakh and Russian**.

Basic functional load of EP consists in access to the educational-methodical modules of disciplines (electronic textbooks, courses of lectures, methodical instructions, working programs), in the organization of interactive interaction between participants of educational process (electronic bulletin board, Internet - adviser, E-Mail), in the organization of gathering of diverse statistics on educational process with use of OLAP technology for the multivariate data analysis, in access to the information connected with the educational process.

The educational portal «Dales of knowledges» represents **a network control system of training**.



The Program platform **of an educational portal «Dales of knowledges» is software SPortal**, representing integrated information complex which provides now information support and automation of the basic functions on operative management of educational process; observation of performance by students of the curriculum; monitoring of progress; formation of curricula according to state standards; calculation of an academic load; formation of necessary current and accounting documents; processing of operative and analytical queries, and also drawing up of the time-table and the analysis of employment of the auditorium fund. In the structure of software support SPortal are included the following subsystems: structure of the university, Student, training aids, Test, curriculum, educational activity, schedule, school leaver.

The module of an educational portal “Educational activities” provides the control and estimation of students, estimates a condition of educational-cognitive work of students, an electronic conclusion examination and academic records.

Noteworthy fact is the experience of introduction at EKTSU **the technologies of Distance Learning** directly influencing the basic process of university - preparation of experts for innovational economy of Kazakhstan. At the university are realized the programs **of Distance Learning** on various specialities for students which are residents in other regions of Kazakhstan, Russia, Poland, China and Kyrgyzstan. On the EP is created the **environment for organization and support of the Distance Learning (DL)**, by means of case and network technology of DL.

The module of Distance Learning is accessible only to the authorized users, according to their education program is regulated the access to electronic educational resources. Services of educational process are accessible to all students (the schedule, progress in a section of group, the description of a speciality, disciplines, and electronic library).

The module of the individual notification is used as alternative of an electronic bulletin board.

The module of “Internet – adviser” is intended for realization the Internet of consultation by instructor for students depending on disciplines of the curriculum.

On the basis of an educational portal is realized **the control system of educational content**, which consists of the following subsystems: the catalogue of educational-methodical resources; the authorized access to the full text resources; electronic library and the virtual methodical cabinet. All subsystems are realized as program-information modules of an educational portal.

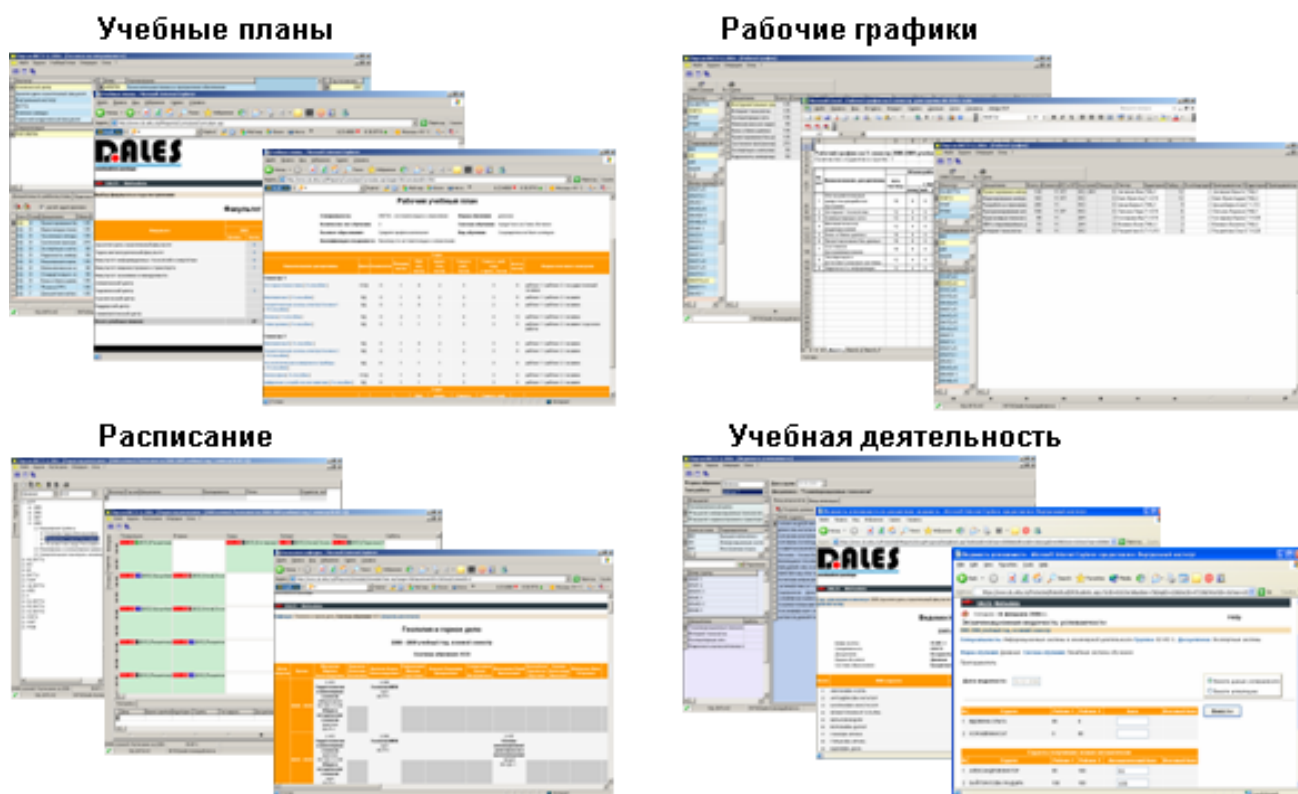


Figure 1 - Separate fragments of hardware-software complex SPORAL

The module “**Virtual Methodical Cabinet**” is intended for the network gathering and monitoring of electronic educational complexes for subjects (EECS) which allows instructors from home or workplace to place educational materials for students with control function from the software engineer on the correct input control information to EECS. Besides, the function of rating EECS allows to generate the report about rating points for the development of EECS and their accommodations on an educational portal. Teachers put these reports to the rating questionnaire, so that all process of development, gathering and accommodation of EECS is taken into account by system and this information is transparent for all checking processes and accessible to the teacher at any moment.

Besides, there is the **network testing Web-complex** in the structure of an educational portal, which is used for realization of the **distance control of students’ knowledge**. The automated system of gathering and processing of the information allows having and using results of all kinds of the control. They are submitted in an electronic form on an educational portal. The given electronic base is protected from the non-authorized intervention.

The given network testing complex is actively used for distance testing in the on-line mode by training for ENT at the regional and republican levels that confirms the productive capacities of a complex.

At EKSTU is developed and used the **WAP-portal of university** (<http://www.do.ektu.kz/wap>) for the mobile wireless devices, intended for granting fast access to the information of university (the time-table, progress, news, etc.) to students; system of granting of fast access to the educational information to users of the mobile devices supporting information interchange by means of technology Bluetooth - a **Bluetooth-portal of university**.

Wireless technologies and mobile devices in the educational and research activity of the university (figure 3 and 4), considerably allow to improve educational process and to prepare young experts who will be value on the near future workplaces. Use of such devices and technologies has a number of advantages in comparison with usual wire technologies. First, there is no necessity to be adhered to one place as there are no wires connecting the device to a network. Second, cost of mobile devices is constantly reduced, and on the basis of wireless technologies it is less than expense for the organization of networks in comparison with expenses for the organization of networks on the basis of wire technologies, which existing today.

The system «**WAP-portal of the university**” is intended for users of mobile phones and other mobile devices, which having Internet access to the educational portal of high SCHOOL. The system gives users to carry out inquiries to the database of the educational portal and to receive such information as the time-table, progress, the information about tuition payment etc. System is very flexible and allows to change with ease the structure and contents of a mobile portal.

The system «**Bluetooth-portal of the university**” is intended for access a database of high school education portal using technology Bluetooth. The system focuses on the use of mobile phones equipped with WLAN Short Range Bluetooth.

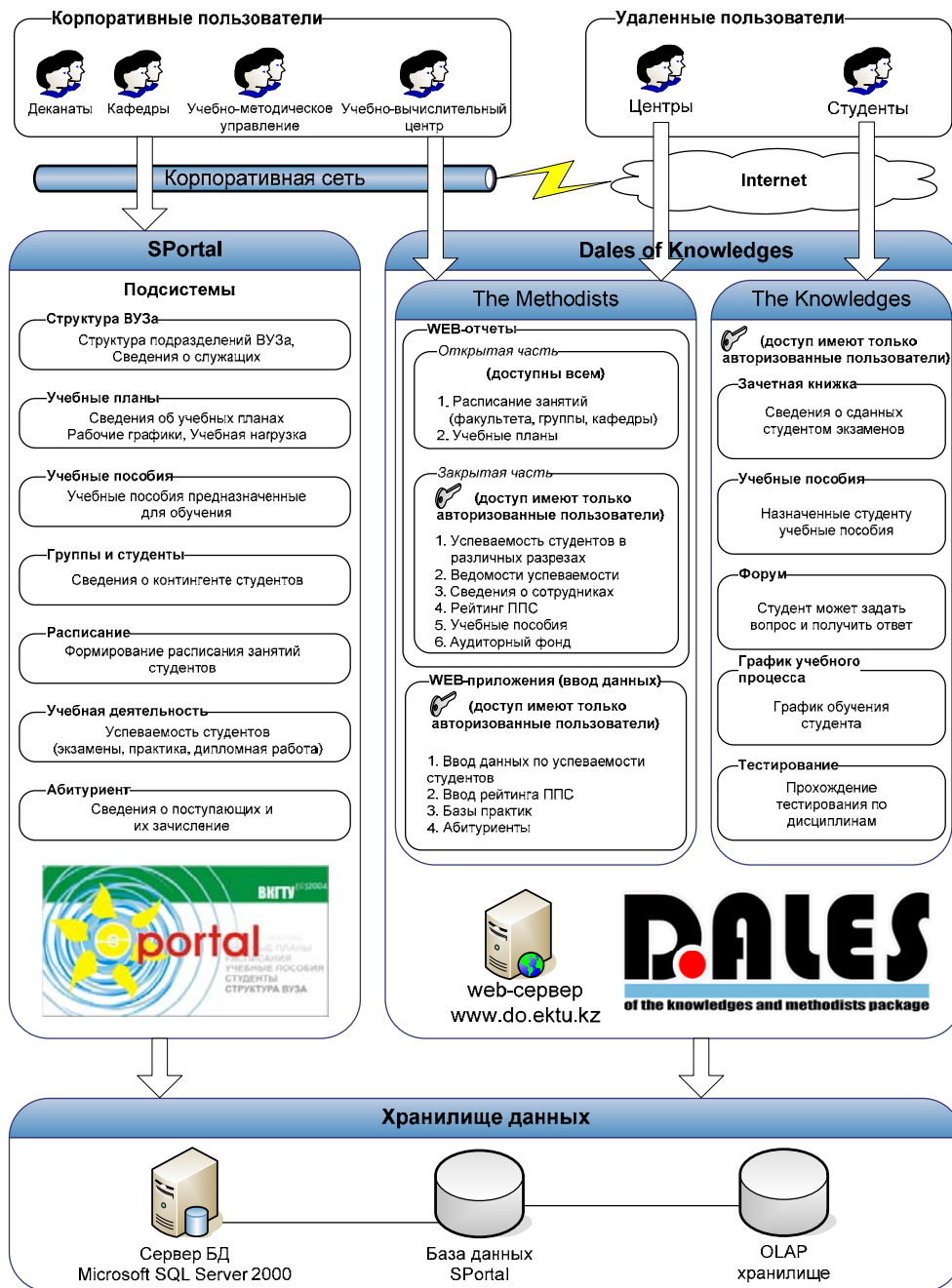


Figure 2 - Architecture of hardware-software complex of SPORtal



Figure 3 - Scheme of wireless technology - Bluetooth-Portal



Figure 4 - Interaction of the mobile device with the Internet server.

The given system is addition to the **system «WAP-portal of the university»** and gives students an opportunity of reception the educational information without connection to the Internet. System «Bluetooth-portal of the university» is very flexible and allows you to easily edit and format the information sent via Bluetooth, for this set Bluetooth-adapter on the server for access to the university educational portal to users of mobile phones.



At EKSTU developed an information terminal with a touch screen for students to have access to the educational portal. It is an alternative version of the education portal and characterized by its mobility of physical location on campus, for that you need to have a point of access to the Wi-Fi zone, or access to network lines to connect to a network of high SCHOOL, and software customized education portal of the University. Besides they are intended not only for granting the target information of a portal, and also serve for realization of sociological interrogations among students, teachers and employees of universities. Besides they can be used as electronic bulletin boards, for informing people about cultural actions of university, city.

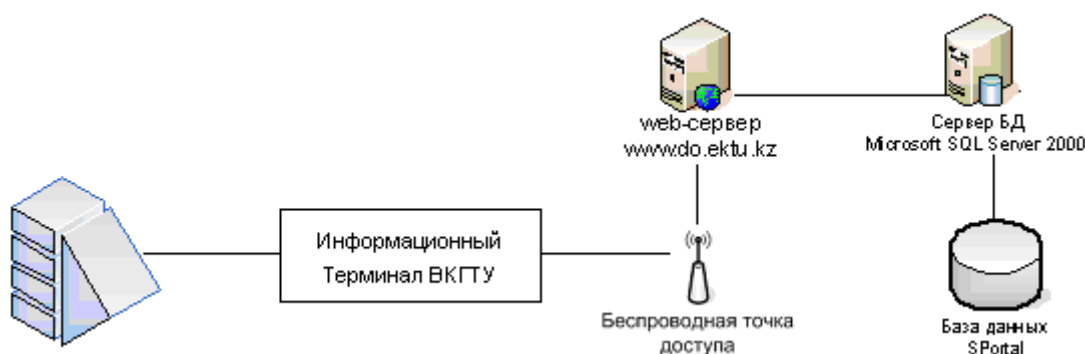


Figure 5 - the scheme of work of EKSTU information terminal

Educational portal of EKSTU is intended for management by the educational process of the university and the organization of educational-scientific-and-innovation activity, allowing to create and to develop the “e-university” model that is a segment of educational services of the electronic government, focused on satisfaction and development of consumers’ requirements of educational community.

The information system ‘teaching staff rating’ (IS) intended for an estimation of scientific-educational activity of the **teaching staff**. Introduction and use of IS means creation the system for the automated perfection of information questionnaires bases, individual indicative plans of teachers for definition of the teacher’s rating.

The information system “The Indicative Plan” is intended for formation and the analysis intermediate term of the indicative plan of scientific - educational activity of the university.

The system of electronic documents circulation of the university represents an effective, qualitative control system of the documentation, office-works, the account, movement monitoring of the documentation, the control of execution.

The dataware of scientific - innovational activity of the university represents accounting and monitoring system of scientific - innovational activity of the faculty, with automation of all forms of the reporting of a scientific department of university.

Now on the national level is solving the problem by creating a virtual university of the Republic of Kazakhstan, this requires the unity of the underlying platform. The software model "e-university" of EKSTU proved its efficiency and effectiveness, at the IV International Forum "Information of Kazakhstan and CIS countries"- the given model was recognized as the best. In addition, at the frame of this project is solving a new global project by creating a unified electronic library of institutions of higher education, for knowledge transfer, this task can also easily be solved with the use of educational portal of EKSTU.

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We hope for the further cooperation!!!