STATE COMMITTEE OF COMMUNICATION, INFORMATIZATION AND TELECOMMUNICATION TECHNOLOGIES OF THE REPUBLIC OF UZBEKISTAN

TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES

«Allowed to defense»
Head of the department «IET»
_____ E.A.Migranova
«___» June 2014 y.

FINAL QUALIFICATION WORK

on the theme: ***«The development of training program for users of corporate information systems»***

Graduate _____ Rozikhodjaeva D.A.
(signature)

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(signature)

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Tashkent – 2014

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In this final qualification work on the theme "The development of training program for users of corporate information systems" the base theoretical data about corporate information systems and the basic difficulties at the stage of their implementation are studied. Based on the revealed problems and taking into account the requirements of the staff there was prepared the teaching plan in the base of which were developed an e-book and guidelines for the system users also, the license agreement between the users and the owners of the information in the system. In developing process there were used the universal text markup language HTML with the elements of the cascading style sheets CSS and the prototype-oriented language of scenarios JavaScript.

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"Корпоратив ахборот тизимлари фойдаланувчиларини укитищ методикасини ишлаб чикиш" мавзусидаги битирув малакавий ишида корпоратив ахборот тизимлари хакидаги бошлангич назарий маълумотлар ва уларни ишга солишдаги келиб чикадиган асосий кийинчиликлар урганиб чикилган. Топилган муаммолар ва ишчиларнинг эхтиёжлари асосида укитиш дастури режаси ва фойдаланувчу кулланмаси, шунингдек, тизимдаги маълумотлар эгаси ва фойдаланувчилар уртасида лицензион келишув яратилди. Яратишда HTML веб сахифаларни яратиш тили, CSS стиллар жадвали ва прототипга йуналтирилган JavaScript сценарий дастурлаш тилидан фойдаланилди.

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В выпускной квалификационной работе на тему "Разработка методики обучения пользователей корпоративных информационных систем" изучены базовые теоретические сведения о корпоративных информационных системах и основных трудностях на этапе их внедрения. На основе выявленных проблем и с учетом потребностей персонала подготовлен план учебной программы по его обучению, по которому разработаны электронный учебник и руководство пользователю, а также лицензионное соглашение между пользователями и владельцами информации в системе. При разработке был использован универсальный метод разметки страниц HTML с элементами таблицы стилей CSS и прототипно-ориентированного языка сценариев JavaScript.

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TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES

Faculty Professional education in the sphere of ICT
Department Information educational technologies
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«CLAIM»

Head of the department «Information educational technologies»

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« ___ » January 2014 y.

TASK

for the final qualification work of
Rozikhodjaeva Dildora Abrorovna
on the theme: «The development of training program for users of corporate information systems»

1. The theme approved by order of the University of «29» December 2013 y. № 1219-20
2. Completion of the finished work: May 26, 2014
3. *Source data to work:* Publications of the technical literature, articles of scientific editions, CCSTD materials, training manuals, internet resources, guides.
4. *Contents of the settlement explanatory note (list of questions to be development):*
1. The basic information about corporate information systems, 2. The development of training program for the personnel of the corporate information system “Fan”, 3. Life safety
5. *List of graphic material:* Tables, figures, user interfaces, presentation.
6. *Date of task issue:* January 15, 2014

Consultant _____
signature

Task received _____
signature

7. Consultants for the individual sections of the final qualification work

Section	Consultant	Signature, date	
		Task issued	Task received
Main part	Kogay V.N.		
Life safety	Abdullaeva S.M.		

8.Progress chart

№	Name of the section of work	Term performance	Signature of the consultant
1.	Analysis of the subject area. Collecting the references.	15.01.2014	
2.	Writing of the first chapter - The basic information about corporate information systems	10.02.2014	
3.	Writing of the second chapter – The development of training program for the personnel of the corporate information system “Fan”	1.03.2014	
4.	Development of the e-book	1.04.2014	
5.	Writing of the chapter of life safety	15.05.2014	
6.	Preliminary defense	26.05.2014	
7.	Preparation to the main defense	5.06.2014	
8.	The main defense	10.06.2014	

Graduate _____ «____»_____2014 year.
(signature)

Consultant _____ «____»_____2014 year.
(signature)

CONTENTS

INTRODUCTION

In the last decades the role of information technologies has strongly increased in the economic and social life of society. In Uzbekistan, acceleration of rates of development of the sphere of ICT is in many respects provided on the basis of the accepted state programs. The great importance was having the Decree of the President of the Republic of Uzbekistan of May 30, 2002 "About the further development of computerization and introduction of information and communication technologies". In it the specific goals and tasks of branch development (improvement of infrastructure of telecommunications and information resources, creation of the whole industry of software products, training of the staff and continuous of the professional development of specialists) are defined.[1] Also an important role in acceleration of rates of development of information technologies in our country was played the Resolution of the President of the Republic of Uzbekistan of March 21, 2012 "About measures for further introduction and development of modern information and communication technologies", which paramount task is formation of National information system on the basis of stage-by-stage integration of information systems of government authorities also, of legal entities and individuals.[2]

Actuality. Today for understanding and management of highly intellectual processes it is necessary to have a good knowledge in the ICT sphere. That's why the problems of market advantage and leadership of the enterprises all more depend on the solution of such problems as knowledge and abilities of employees in the field of ICT, their education and professional qualification, high-quality knowledge of the computer equipment, software products, etc. Improvement of quality of personnel's work, economical use of available resources is the purpose of each enterprise. Introduction of the latest information and communication technologies and the automated systems increases the production's efficiency. It happens essentially due to equipment of production by the new machinery and its competent, correct exploitation by the staff of the enterprise.[3]

However, introducing the automated information system, developers often don't pay serious consideration on the training of its personnel. As a sequence of that the system is used inefficiently, and the employee, falling a victim of the intrapersonal conflicts, doesn't feel himself as its part and doesn't wish to interact with it what brings to sharply falling of the productivity.

Development of a full-fledged technique of training and preparation of the highly qualified personnel apt to competently work in the new information environment, able to use the computer and various software products, becomes necessary.

In FQW is developed the program of training of the personnel of the automated information system "Fan" being a part of system of the electronic government and serving for automation of activity of such bodies as Committee for Coordination Science and Technology Development (CCSTD), Academy of Sciences of the Republic of Uzbekistan (AS RUz) and the Highest Attestation Committee of the Republic of Uzbekistan (HAC RUz).

Object of FQW is training of users of corporate information system "Fan" for the most effective work in the information environment.

Subject of FQW is a process of formation of technological knowledge about the basics of corporate information systems also, skills on work in concrete system.

The purpose of this final qualifying work is elaboration of training program for users of CIS "FAN" which will help them easily and fast to master new system and most effectively use it in their activity.

In this connection there are the following ***problem definitions*** of the FQW:

1. To analyze the existing methods of training;
2. To elaborate a syllabus for users of CIS;
3. To develop an electron book that facilitates the process of practical studying of users of the system;
4. To create the user's guide of the system;
5. To develop the license agreement between the owners and users of the information in CIS

The theoretical and methodological base of this research comprise an educational and methodical literature, resources of the Internet, articles in scientific magazines.

The practical importance of final qualifying work is that thanks to the to launched program, users of CIS "Fan", among which the majority comprise of young scientists, will have an opportunity of acquisition of versatile knowledge for the professional activity also, will be able to develop skills of expert using of the corporate information system for reduction of their personal labor expenses.

Final qualifying work consists of introduction, 3 chapters and the conclusion.

In introduction is substantiated the actuality of the work also an object and a subject of research, practical importance and the structure of the work are defined.

In chapter 2 the existing methods of training of the personnel are studied, on the basis of which the plan of the training program for their training is developed and stages of creation of the e-book and a user's manual of system also, the license agreement between users and the owner of CIS are given.

In chapter 3 are provided an assessment of psychophysiological loads of the person and the requirements for technical safety.

In the conclusion the main practical and theoretical findings to the final qualifying work are given.

CHAPTER 1. THE BASIC INFORMATION ABOUT CORPORATE INFORMATION SYSTEMS

1.1. Understanding of a corporate information system

The term corporation occurs from the Latin word “corporation” which means association. The corporation designates association of the enterprises working under centralized management and solving the general problems. As a rule, corporations include the enterprises located in different regions and even in various states.

Corporate Information System (CIS) is a system intended for the maintenance of the effective functioning of the company through the automated performance of management functions (Fig. 1).[4]

Corporate information systems cover almost all aspects of the modern enterprise, make closer ties between production facilities and information infrastructure components and have a number of inherent characteristics.

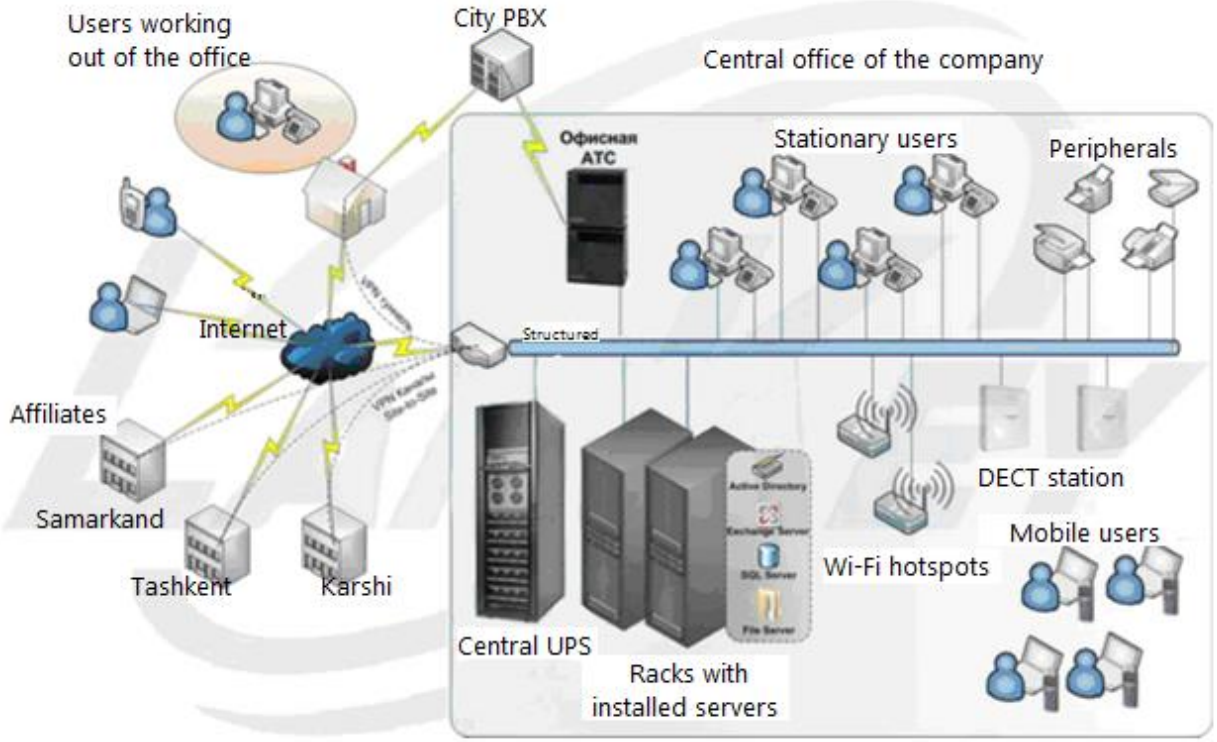


Figure 1. Simplified diagram of CIS

"Corporate" in CIS means the conforms of system to the needs of a big company with a complex territorial structure. Information system of the individual components of company departments (financial, economic, marketing, etc.) can not claim corporatism. Only complete system can rightly be described as the CIS.

The most significant characteristics of CIS are:

1. Architecture of information system - structure of elements and their interaction;
2. Network technologies, their scales and network topology;
3. The functional structure of management realized in information system (structure of subsystems, complexes of tasks);
4. Organizational form of information's storage (the centralized or distributed database);
5. Channel capacity - the speed of processing of transactions;
6. Volume of information storage of data;
7. Systems of documents and document flow;
8. Number of users of CIS;
9. User interface and its opportunities;
10. Standard information technologies of processes of collecting, transfer, processing, storage, extraction, information distribution.
11. Providing a full cycle of management in corporation scales: rationing, planning, accounting, analysis, regulation on the basics of feedback in the conditions of information and functional integration;
12. Territorial distribution and considerable scales of system and object of management;
13. Heterogeneity of components technical and software of structural components of a control system;
14. Common information space for development of the administrative decisions, uniting management of finance, the personnel, supply, sale and management of production;
15. Functioning in the non-uniform computing environment on different

computing platforms;

16. Management realization in real time;

17. High reliability, safety, openness and scalability of information components.[5]

The main objective of CIS is to support the functioning and development of the enterprise. The sense of existence of any business, as known, is a profit reception. Despite the fact that the scope of activities of enterprises (manufacturing, services) can be different, in general all management tasks are similar. They consist in the organization of management coming in at the entrance of the enterprise resources to output the desired result.

1. By introducing a CIS, the enterprise pursues the following main aims:

2. Quick access of heads of all levels of business management to the reliable, exhaustive information provided in a convenient look;

3. Creation of common information space for all levels of management;

4. Simplification of data recording and their processing;

5. Disposal of double registration of the same data;

6. Information registration in real time;

7. Decrease in labor costs and their distribution evenly on all participants of system of the accounting, planning and management;

8. Automation of consolidation given for the distributed organizational structure (holdings).[6]

Using of CIS in some extent changes the role of financial functional units, increasing the role of responsibility of their leaders. This happens also because the enterprise managers get an opportunity of the direct control over the results of all units of their business. Along with changing of essence of information streams there is also a decrease in labour input of performance of standard operations. The same document goes through different units of the enterprise, every of which makes the necessary changes. Without the using of computer-based information system, each department would create their documents from the outset.[5]

All Corporate information systems are distributed, so they can be divided into

two main types (Fig. 2):

- file-server CIS
- client-server CIS

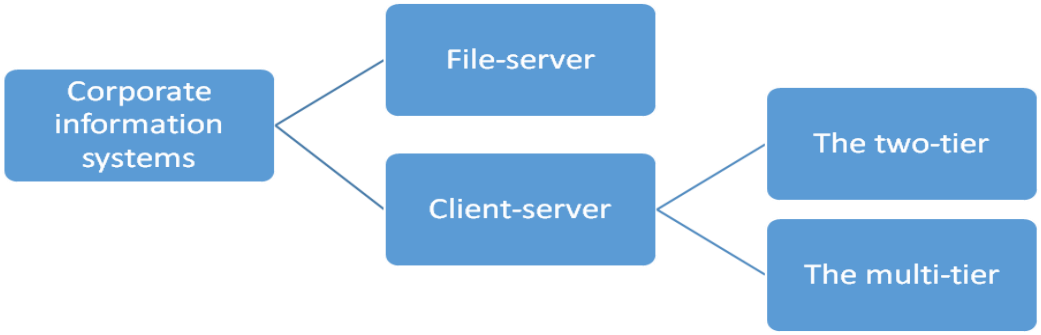


Figure 2. Classification of CIS

In the file server CIS the database resides on a server (file server) and the database management system (DBMS) and client applications on the workstations.

In client-server CIS the database and the DBMS reside on the server and on the workstations are located client applications.

In turn, the client-server CIS can be divided into two-tier and multi-tier.

In two-tier CIS there are only two types of "links": the database server that hosts the database and DBMS, and workstations, on which are located the client applications. Client applications access to the DBMS directly.

In multi-tier CIS are added intermediate "links": application servers. Custom client applications do not access to the DBMS directly, they interact with intermediates tiers.[6]

1.2. The life cycle of corporate information systems

The life cycle (LC) is a model of creation and using of software (or information system), reflecting its different states, starting from the moment of the need in this software (or IS) and ending with moments of its complete failure of use by all users.

In the LC there are the following groups of processes (Fig. 3):

1) main processes of life cycle. Processes, which are realized under control of the organizations (the customer, the supplier, the developer and the personnel of support of information systems) involved in the life cycle of information systems, are a part of the main processes of life cycle.

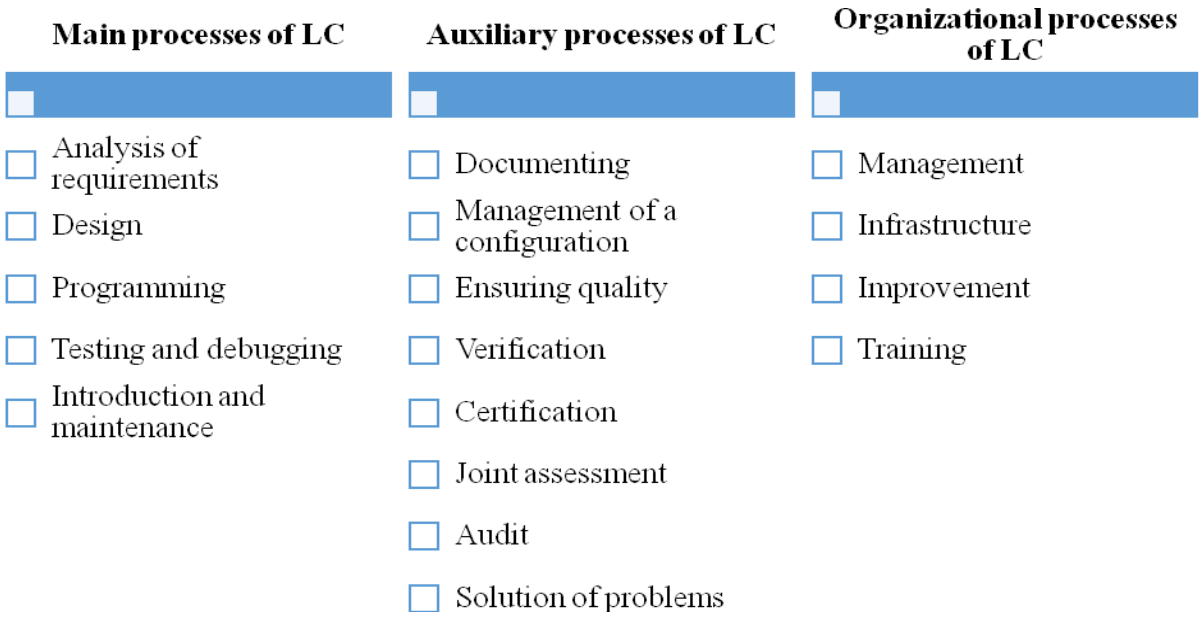


Figure 3. Life cycle of IS

The following main stages of LC of IS are traditionally allocated:

- Analysis of requirements. At this stage it is necessary to reveal all actual and potential needs of the customer of information system, to understand, what data flows exist in the organization of the customer, to estimate information volumes, to describe business processes, etc.
- Design. At this stage it is necessary to give the answer to a question about how the system will realize those requirements which are imposed to it at an stage of analysis. Partition system into subsystems and distribution of functions between them, database design, defining the requirements for the hardware and software components of the system.
- Programming. At a stage of programming there is a direct coding of program modules of information system.
- Testing and debugging. In the period of this stage occurs a testing of the created program modules and correction of the found mistakes. It is accepted to

distinguish three types of tests: tests of modules, integration or component tests, system tests. Tests of modules include testing of separate classes, subprogrammes, modules. Integration tests are intended for testing of interaction of various program modules of system among themselves. System tests verify all system as a whole as it is seen by the end user.

- Introduction and maintenance. At this stage occurs an introduction of information system at the customer and the subsequent support of the working of users with the system.

2) auxiliary processes of life cycle. This group is necessary for support of performance of the main processes and ensuring successful realization and quality of introduction of the system. These are:

- Documenting (the formalized description of information created during LC of IS);
- Management of a configuration (application of administrative and technical procedures throughout LC of information system to determine the status of software in the system, managements of their modifications, the description and preparation of reports on a condition of components of information system and requests for modification, ensuring completeness, compatibility and a correctness of components of system, management the storing and its delivery);
- Ensuring quality (providing corresponding to a guarantee that the system and processes of its LC conform to the set requirements and the approved plans);
- Verification (definition that the software, as a results of some action, completely meet of requirements or the conditions caused by previous actions);
- Certification (confirmation and an assessment of reliability of the held testing of information system);
- Joint assessment (an assessment of a condition of works on the project and software, created when performing these works);
- Audit (determination of compliance to requirements, plans and terms of the contract);
- Solution of problems.

3) organizational processes of life cycle. They define actions and tasks performed by both the customer and the project developer for management of the processes. They include:

- Management (management of product release, management of the project and problems of the corresponding processes, such, as acquisition, delivery, development, exploitation, maintenance, etc.);
- Infrastructure (a choice and support (maintenance) of technology, standards and tools, a choice and installation of equipment rooms and the software used for development, operation or maintenance of IS);
- Improvement (assessment, measurement, control and improvement of processes of LC of IS);
- Training (initial training and subsequent continuous upgrading of the personnel). [8]

LC is formed in accordance with the principle of top-down design and is iterative: implemented steps from the earliest cycled in accordance with the changing requirements and external conditions, the introduction of restrictions, etc. At every stage of life cycle are generated a certain set of documents and technical solutions, and for each stage of the initial documents are the solutions obtained in the previous step.

Each phase ends with verification of generated documents and decisions in order to verify their conformity with the original. Existing models of life cycle stages determine the phases execution order in the course of development, and the criteria for the transition from stage to stage.[9]

An important role is given to the implementation stage of the developed system, in which also must be solved the problems of the CIS users training.

1.3. The main tasks of the implementation phase

The process of implementation and maintenance of information systems (IS) - especially in the initial period - is a long, arduous and painstaking work. On the

progress of this process depends which relations will be between the implemented IS and its user.

Implementation phase, in turn, consists of several important substages (Fig. 4).

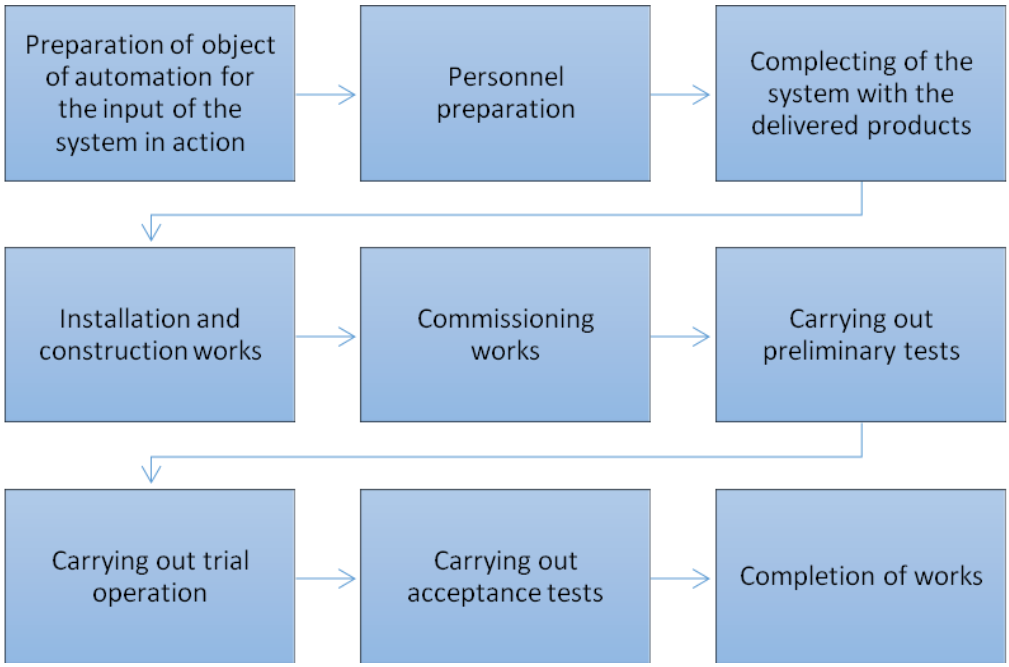


Figure 4. Stages of works on the project's introduction

According to state standard specification 34.601-90, each substage has to provide the certain results given in table 1.

Table 1. Stages of operations of system implementation

Stages of the work	Result
Preparation of automation object for input the system in action	Creation at the Customer of an escort service of system (if needed).
Staff preparation	Training of users and system managers.
System complete set with the delivered products	Purchase and delivery of the necessary equipment and software. For removal of risks of delivery the given stage is normally fulfilled on the previous stage.
Civil and erection works	The equipment is mounted in the selected place and connected to data links.
Starting-up and adjustment operations	It's transited the technical adjustment and software. The software of the system is transferred to the testing/commercial operation zone. The system of reserve copying is adjusted. Loading of the historical data in system is led. Processes of extraction of the data of systems-sources are launched.
Carrying out of preliminary tests	Tests of system for serviceability and correspondence to the

	technical project according to PIM are led. Elimination of malfunctions and modification of the documentation according to the test report is led. The act of acceptance of system in pre-production operation is issued and signed.
Pre-production operation carrying out	Pre-production operation is led. Elimination of malfunctions, finishing of a software and additional adjustment of means are led.
Carrying out of acceptance tests	System tests according to PIM are led. Elimination of malfunctions and modification of the documentation is led. The act of transmission of system in commercial operation is issued and signed.
End of operations	The act of end of operations is signed.

The first time when the user meets the system theoretically is the moment when to him comes the developer and try to find out how the user – the future user of the future IS – will see his business.

During the implementation phase the user first time meets the system in practice. He tries to adjust, adapt to it, and at the same time, to adapt it to his needs and habits. The indistinct and abrupt wishes stated by him to the developer at a stage of the system creation, get at this time character of mass and concrete requirements and claims.

Implementation phase is very important for the developer - at this stage his product acquires the complete character, it is now determined how effective were the developer's solutions, how successful is the created product.

Implementation phase is very important for the user - right now he defines his future activities and gives a place for the established information system, designed to help him in his work.[15]

Computerization of institutions, the subject area of activity of which is far from the computer world (e.g. hospitals), at the implementation stage usually occurs with some difficulty. At this time the production process is influenced by many complicating factors starting with lack of computer literacy by users and

finishing with negative attitude of the personnel to system in connection with temporary increase in amount of works (Fig. 5).

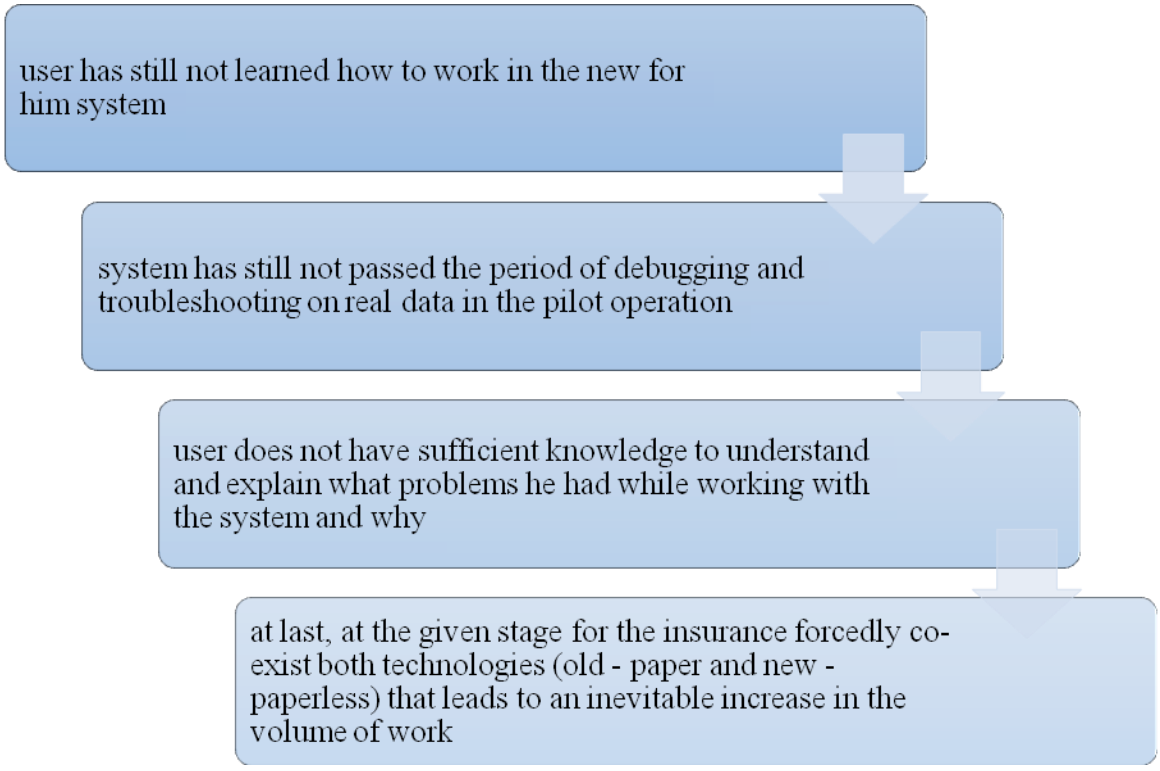


Figure 5. Problems affecting to the successful functioning of CIS

Therefore at a stage of implementation of the project it is important to exercise judgment in process of preparation of the CIS users to work with system that further will provide an effective using of the worker's potential and his high motivation maintenance (the positive relation to work).

1.4. Factors of success in the implementation of the corporate information systems

Corporate information systems become today a habitual tool of large and medium-sized businesses. Their main objective is automation of business processes of the company, administrative functions, infer reference help or analytical information. However, the statistics of introductions of such systems is quite disturbing. Productivity of system considerably depends on settings under certain tasks of the concrete enterprise. Only correctly designed and adjusted

system really helps to make business more operated and transparent for the company management.

As the world statistics shows, only 40-50 of 100 attempts of introduction of corporate information systems come to the end successfully. Other projects last for years without bringing expected effect or are simply turned (Fig. 6).

In spite of the fact that possibilities of the modern automated information systems are sufficiently developed and constantly increase, often after introduction of corporate information system the managers are still dissatisfied with the quality of information support. For example, contrary to all expectations, not reduced work expense for routine operations and, more importantly, retains all the drawbacks of the previously established practice of the production and business operations. The speech usually goes about incorrect registration of primary documents, existence of excess stocks, violations in marketing policy, in particular about the issuing products to customers with outstanding obligations. Moreover, quite often designed information system is so difficult and inadequate to the current tasks that isn't used at all in the company.[3]

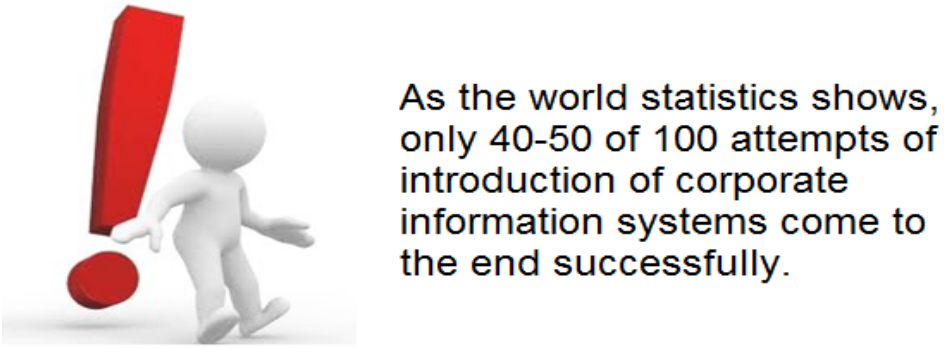


Figure 6. Statistics success of CIS introduction

In achievement of maximum efficiency of introduction of CIS an important role are playing the following major factors:

1. Comprehension by administration the need of implementing the CIS and understanding of the fundamentals of their construction.

The key factor without which, actually, a project should not to be started, is a support in implementation by senior management (better - by the owners) of the company. At a management of the successful enterprise are in most cases

accurately defined strategic and tactical targets of its development, including in the automatization. Generally, now it is difficult to find a leader (especially in large enterprises), who would not like using modern means of automation to improve enterprise management and optimize costs. Correct implementation of CIS, along with the possibility of operational data collection, storage and analysis of operational and financial data, contributes the employees of the company to executive discipline and provides guidance for building a transparent structure and sequence of the processes of its activities.

2. Readiness of administration for the accurate organization of the project of inspection of the enterprise and to introduce the CIS.

Successful introduction of CIS is impossible without the correct organization of all process of introduction. In organizing the project implementation it is necessary to consider the following key points: define the project management structure; to confirm the methodology of monitoring the progress and quality of performance of the project, to determine the order of planning and the allocation of financial and human resources. In addition, during the project implementation it is necessary to conduct extremely scrupulously all project documentation and in the due time to react on the failure of the schedule of the CIS introduction.

There are operational, project documentation and documentation for maintenance and development of the CIS. The operational documentation contains the instructions written short and laconically. Project documentation details the architecture of information and software component, as well as its software and hardware implementation. Documentation for the maintenance and development is forming of technological, methodological and organizational components of the development of corporate information system. Along with the documentation there is also a specification of the regulation of the relationship between customer and supplier.

3. Readiness of administration for allocation of the qualified employees for rendering assistance to external experts-implementers.

In the event that the enterprise resorts to services of the foreign organizations,

various consulting firms, it is necessary to take into account concrete amount of works, which they can actually execute.

Areas of activity of such firms may be different: consulting firms can only deal with the planning process of technological modernization, reorganization of business processes, selection of optimal software and hardware solutions. The experts of the enterprise of the group of introduction must necessarily be trained. If employees have not passed a full cycle of training it means that the efficiency of their subsequent work essentially falls, what, in the best case, leads to delays in project.

4. Readiness of the company to implement and conduct the inevitable changes in various operational and management processes, the presence of corporate accounting standards and reports.

Changing of the management system, first of all, is connected with using of the newest methods of work with the information.

Here it is possible to carry consulting support. Consulting support of introduction is a training and consultations of employees of the enterprise in various questions (CIS configuring modules, specifications of their use in specific tasks and examination at the stage of introduction, etc.). The immediate implementation (forming the base of reference data, activities process modeling, conduct of trial operation of the CIS and its entry into commercial operation) should be dealt by the company's employees in the introduction group. [7]

1.5. Problems related to training of users

In most cases at introduction of CIS there is an active resistance of employees which is a serious obstacle for consultants and can to break or essentially to tighten the introduction project. Problems associated with the rejection of the new automation system by employees, most often occur in companies that have never worked with a large-scale transformations. [10]

Negative attitude of the staff of the company slows the project and reduces its

effectiveness. Moreover, the non-constructive approach to implementation is usually reflected in the cost of the consulting. At calculation of cost of the automated system introduction the consultants always intuitively evaluate the company's staff. If by the first impression the client is not configured to cooperate, the next stages of the project, as a survey of company or testing the system can take more time, and, consequently, demands heavy expenses on consulting, than in the companies where the personnel thinks structurally and is ready to cooperate.

The most common problem associated with resistance to the automatization project is expressed in misconduct of employees. It can be expressed in project sabotage, aggressive behavior, failure to listen the instructions of leaders etc. [14] Such behavior is usually caused by several human factors (Fig. 7):

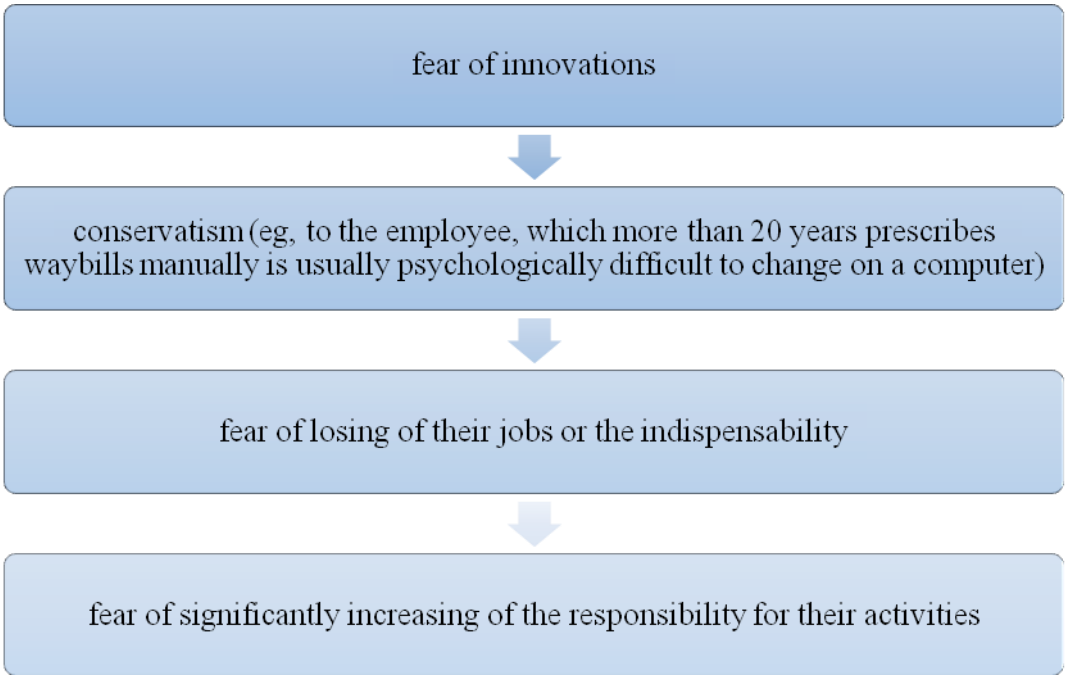


Figure 7. Main problems and fears of CIS users

The leaders which made the decision to automate their businesses, in such cases should encourage responsible group of experts conducting the implementation of the information system to conduct explanatory work with the staff and in addition:

- to create at employees of all levels a strong sensation of inevitability of introduction;

- to give to the project manager of introduction sufficient authority, because the resistance can sometimes happen at the level of top managers;
- always to support all organizational decisions concerning introduction by the edition of corresponding orders and written instructions.

In addition it is often necessary to organize a PR-campaign of the explanation to employees, which would explain to employees that innovations are aimed at improving the competitiveness of the company and, hence, to improve the material welfare of all its employees. First of all, it is necessary to explain to the personnel that the development of the system is a promotion of the company to new horizons, and these horizons should be formulated in the language understandable for the employees. For example, to the same ordinary bookkeeper it can be explained that the time for introduction of new system and for training will be spent knowingly - a line in the resume that he have skills in work in the given program, will add value of him as a specialist. The same applies to the company as a whole: the employee with experience in a company that is rapidly prospering will always be valued higher than a company employee, that doesn't have authority on the market.[12]

At some stages of the project introduction can temporarily increase the load on employees. This is due to the fact that in addition to normal working duties employees must to learn the new knowledge and technology. During the trial operation and during the transition to commercial operation of the system during some time it is necessary to run business, as well as in new system, and to continue conducting by their traditional ways (to support paper document circulation and the system that existed before). In this connection, separate stages of the project of introduction of system can be tightened under the pretext that the employees have too much work on direct appointment and mastering of the system is for them a minor and distracting employment. In such cases the director, besides conducting explanatory work with evading from mastering of new technologies employees should:

- increase the level of motivation of employees to the mastering of system, in the form of encouragement and thanks;

- make arrangements for reduction the time of parallel business management.

1.6. Tasks to train users of the corporate information system

CIS is created to satisfy the information needs of a particular user. The user, as a rule, applies ready software packages, with the functions corresponding to his requirements, focused on certain kinds of activity. [5]

At many enterprises, there is no systematic approach to training the personnel to work with the used software and hardware. As a result, the acquired information systems and equipment often aren't used, or used very inefficiently. In many respects the reason is a lack of skills of work of users with system, especially with recently introduced that leads to incorrect performance of operations in relation to the provided technologies of work.

Process of training of users consists of several stages.

First of all, the end result of training must be defined, the list of knowledge and skills which listeners by the time of its termination have to possess is must be formed.

Secondly, criteria of determination of success of training are must be developed (in other words, demanded level of proficiency in the acquired skills). These criteria become a basis for system of an assessment of training.

Thirdly, training quality control at all stages. Listeners pass test and perform control tasks that will show their level of mastering of the material.

Fourthly, is obligatory the existence of educational and methodical materials, or creation for users an instruction in which in terms of users is described how to perform the daily tasks.

Fifthly, training is carried out constantly. Practice shows that once is absolutely not enough to educate users and do not come back to this issue. Competence of the personnel needs to be maintained constantly. Thus it is impossible to forget that the cadre can change, and must be taught skills to new employees.

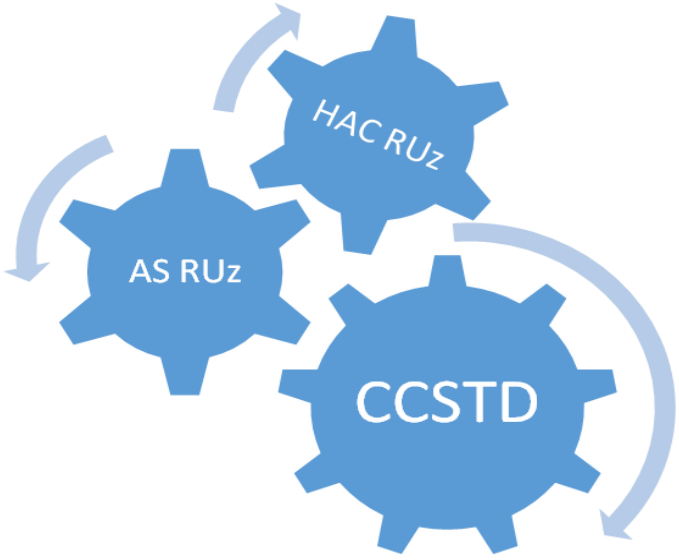
Therefore for the organization of the CIS developer it is very important correctly to define methods and means of training of the introduced system users.

In this connection there are defined the following problems of the given final qualification work:

6. To analyze the existing methods of training;
7. To develop a syllabus for the users training;
8. To develop a e-book that facilitates the process of practical studying of users of the system;
9. To create the user's guide of the system;
10. To develop the license agreement between the owners and users of the information of CIS

1.7. General information about the corporate information system “Fan”

The corporate information system "Fan" is intended for collecting, processing, systematization and storage of information on results of the conducted scientific researches, efficiency of their introduction and the persons having scientific degrees and ranks.



Picture 8. The structure of the CIS "Fan"

The main objectives of introduction of system are:

1. creation of the CIS "Fan" of three state bodies of CCSTD, AS of RUz and HCC integrated into the National information system, providing automation of information processes in activity of these organizations, allowing to increase efficiency and quality of performance of the functions (Fig. 8);

2. extension of the list and improvement of quality of the interactive state services provided by them to the subjects of business and the population;

3. ensuring broad access to the appropriate information resources.

The object of informatization represents three separate organizations: Committee for Coordination Science and Technology Development (CCSTD), Academy of Sciences of the Republic of Uzbekistan (AS RUz) and the Highest Validation Committee of the Republic of Uzbekistan (HCC RUz).

CCSTD is the government body coordinating development of science and technologies in the country. Its main functions are the following:

– definition on various branches of the priority directions of development of science and technologies and preparation of decisions for the Ministry of Finance RUz about their financing in a certain period;

– to lead competitions of scientific projects of fundamental and applied researches and innovative works;

– formation of state programs of fundamental and applied researches, innovative works of departmental and interdepartmental character;

– to lead competitions of young scientists;

– reception and processing of reports on the executed researches;

– formation of programs of carrying out scientific conferences and other actions of republican scale;

– organization of scientific editions;

– collecting materials about results of scientific researches.

CCSTD works according to the scheme 5+1, i.e. state programs are formed on following five main ministries and departments: AS of RUz, Ministry of the Highest and medium-special education, Ministry of Education, Ministry of Health,

Ministry of Agriculture and other organizations conducting scientific researches (Higher education institutions and research establishments of industry submission).

AS of RUz is a government body coordinating activity of the academic research establishments, has the infrastructure consisting of scientific institutions (research institutes, the centers, branches, etc.) and executive office.

The main functions are reduced to the following:

- participation in events leading by CCSTD;
- conduct the competitions of scientific projects on basic and applied researches and innovative works in the scale of the subordinated scientific institutions;
- reception and processing of reports on the executed researches;
- formation of programs of carrying out scientific conferences and other actions of republican scale;
- organization of scientific issues;
- collecting materials about results of scientific researches.

HCC RUz is government body attesting scientific staff of the highest category by considering of theses and documents for competition of a scientific degree of the doctor of science and an academic status professor.

The main functions are reduced to the following:

- reception of statements and considerations of scientific theses;
- issue of diplomas of the doctor of science, professor;
- nostrification of diplomas of the doctor of science given out in other states.

Information systems as a part of CIS "Fan":

– "Olim" is intended for collecting, processing, storage and systematization of information about approved in educational degrees and academic statuses, nostrification of diplomas about awarding of scientific degrees;

– "Ilmiy ishlar" is intended for collecting, processing, systematization and storages of information on results of the conducted scientific researches and about scientific institutions and the staff held scientific exhibitions;

– System of administration CIS "Fan".

The organizational structure of CIS "Fan" is founded on the separate databases and reference books. The functional structure is realized by the list of the automated tasks. Input information is taken from the DB, reference books and in the form of operative information. Output information has the fixed form formed by separate inquiries.

The main structural component of CIS "Fan" is:

- the kernel including information systems "Ilmiy Ishlar", "Olim";
- software environment that supports a wide common technology functions of CIS "Fan";
- service programs controlling the technology of staff's teamwork.

Functioning of the CIS "Fan" includes the following processes:

- exploitation of CIS "Fan";
- system maintenance;
- information support (information updating);
- support of the applied software.

CHAPTER 2. THE DEVELOPMENT OF TRAINING PROGRAM FOR THE PERSONNEL OF THE CORPORATE INFORMATION SYSTEM "FAN"

2.1. Classification of the personnel training methods

The method of training of the personnel is focused on achievement of the didactic purposes a way of organization of training-informative activity of the worker with in advance defined:

- tasks;
- levels of the cognitive activity;
- educational actions and expected results.

Methods of training of the personnel are various and are always directed on systematic development of the professional skills, abilities and knowledge of employees. Personnel training is focused on the purposes of the relevant departments which are defined by the business-strategy of the company.[12]

Goals of the learning set by the employer and goals of employee are differences.

The purposes of training of the personnel from the side of company are:

- organization and formation of the personnel management;
- ability development to reveal, understand and solve problems;
- personnel renewal;
- flexible integration of the personnel;
- personnel formation;
- qualitative adaptation;
- successful introduction of innovations.

The vocational training purposes, from the side of the employee are:

- maintenance at the necessary level, and increase of a professional skill level;

- reception of professional knowledge, including in not professional work sphere;
- acquisition of versatile knowledge for the professional work (about suppliers and end users of the production of firm, the state and financial organizations influencing for work of firm);
- developing skills and knowledge in the planning and organization of production.

The choice of methods of the personnel training depends on set of factors basic of which are: the training purposes, expected results of training, specific features of trainees and many other things.

Figure 9. Methods of an active training

Differentiated training programs differ on complexity level, at cost, passing time and duration of influence.

Methods of training can be classified into:

a) passive and active;

b) individual and group;

c) with a separation from manufacture and without separation.

The passive (traditional) methods include:

- Lectures,
- Seminars
- Educational video films and others.

These methods are prevailing at transfer and fastening of knowledge. In spite

of the fact that traditional methods prevail also today, they have a number of disadvantages: don’t allow to consider different level of knowledge, don’t require the feedback that shows the degree of absorption of the material.

At active methods of training the great attention is given to a practical basis of knowledge skills and abilities transferred to listeners (Fig. 9). Now are extended:

- Trainings
- Programmed training,
- Group discussions,
- Business and role-playing games and others.

Sometimes it's not so easy to divide the training methods on active and passive. Some of them are transitional to practical exercises and independent work.

The most common methods of training in the workplace include:

- Mentoring,
- Method of increasing complexity of tasks
- Changing workplace
- The directed acquisition of experience,
- Manufacturing instructions,
- Method of delegating responsibility and other methods.

The main methods of training outside the workplace include:

- Lecturing,
- Conducting business games
- Analysis of specific work situations
- Conferences and seminars,
- Forming groups to share experiences,
- Creating quality circles and other methods.

The given methods of training don't exclude each other as training within the precincts of the organization can be conducted with a separation or on-the-

job. Besides, they can supplement each other as training in the course of work is often combined with training in other organizations or educational institutions.

Training on a workplace is distinguished with its practical orientation, direct connection with production functions of the employee, provides usually significant opportunities for repetition and fixing of the again studied.[13]

Methods of training outside the workplace give the trainee the opportunity to abstract from a current situation on a workplace and to go beyond the traditional behavior. Such training promotes the formation essentially new behavioral and professional competencies. Training outside the workplace is connected with additional financial expenses and employee distraction from his duties. At the same time by consciously changing environment the worker comes off from daily affairs; training is carried out in the course of lecturing, a learning practical training (business games, industrial situations).

This classification methods training of the personnel generalizes some classification criteria, but it is not exhaustive.

There are many methods of training of the personnel and each of them has its advantages and disadvantages. It is important to remember at construction of system of training of the personnel. The main criterion at a choice of this or that method should be its efficiency for achievement of the purposes of training of each individual employee.

The process of upgrading the knowledge and skills of the staff must to have a constant character, so the managers should to create the self-trained organization, able to apply the experience received in the course of the activity to updating of methods of work at the decision business of problems of the company. This is the major principle in the training and the choice of teaching methods.

2.2. The elaboration of a syllabus for training users

Syllabus is a created within training system document defining the contents and amount of knowledge and skills intended to obligatory familiarization on the

some academic discipline, their distribution on topics, sections and the training periods.[16]

Besides the full text, the syllabus can be accompanied by the explanatory note briefly revealing the learning Objectives of the subject, describing sequence of studying of the material, listing the most essential methods and the organizational forms, establishing connection with teaching of other subjects.

The basic principles of creation of the syllabus:

- attention to the modern achievements of science, technologies and culture;
- compliance with social objectives of trainee's education;
- development of creative abilities of trainees;
- continuity - from the previously learned material to the current and subsequent;
- interconnection between the subjects corresponding to natural communications between the studied phenomena.

Syllabus can be standard, variable, operative, school, author's, individual. There are two ways of creation of the syllabus: concentric (when separate parts of the training material are repeated in the constantly extending depth level) and linear (separate parts of a training material form continuous sequence of links of closely related units, the content of knowledge is transmitted once in a certain logic).

Being a component of an educational program, syllabus is intended to provide guarantees in receiving by trainees of an obligatory minimum of education according to the state educational standard and specifics of local conditions. In the document have to be reflected:

- requirements of the state educational standards;
- obligatory minimum of the contents of training programs;
- the maximum volume of a training material for trainees;
- requirements to level of training of graduates;

- the volume of hours of teaching burden defined by the training plan of educational institutions for the implementation of academic subjects, modules, special courses, workshops, research and project activities in each class;
- cognitive interests of trainees;
- purposes and problems of an educational program of educational institution;
- necessary set of training and methodical providing.

According to these components the structure of the syllabus, as a rule, includes: a title page; explanatory note; requirements to level of training of trainees; educational and thematic plan; contents of the program of a training course; control devices; educational and methodical learning tools.

At the creation of the syllabus for training of users CIS "Fan" the following features were considered:

a) have to be present both passive, and active methods of training;

b) theoretical training can to have a group form, but must to be various for different groups of users;

c) practical studying has to take place individually;

d) training must to be without a separation from manufacture

The main purpose of education was to raise the professional skills of users of the corporate information system "Fan" by forming their knowledge and skills about modern information systems and technologies and management practices on an example of corporate information system "Fan".

As a result of studying of the discipline the trainees must to know:

- essence of information systems and their importance in management of the modern organizations;
- bases of management of information resources and technologies;
- bases of formation of information structure at the enterprise;
- typology of management information systems;
- features of corporate information systems;
- requirements for enterprise information systems ;
- information about the architecture of corporate information systems ;

- features of corporate information systems "Fan " ;
- adoption of management decisions based on information obtained with the help of the automated information system.

To be able:

- freely orientate in the CIS "Fan";
- to carry out manipulations in system in compliance with the role in it;
- to make administrative decisions on the basis of information in CIS.

In studying of discipline were applied the multimedia technologies: computers with the installed corporate information system, a projector, the resident reference books, the automated e-book and videos demonstrating the work in the system.

Duration of training had various length for different groups of users (administrators, chiefs, operators, managers of system). Each group of users had the lecture, practical materials and system of an assessment of knowledge.

Lectures, practical materials and test tasks are available in the developed e-book to this discipline.

The Syllabus for users of the category "Operators" included 15 lecture occupations lasting 28 hours and had an appearance (Table 2):

Table 2. The Syllabus for users of the category "Operators"

№	Тема	Содержание	Продолжи-тельность
1	Понятие информации	• Информация и ее роль • Виды информации • Свойства информации	2 часа
2	Информационные технологии и ресурсы	• Информационные ресурсы и технологии • Виды информационных технологий • Информатизация общества и автоматизация офиса	2 часа
3	Информационная система	• Понятие информационной системы • Этапы развития информационных систем • Процессы, протекающие в информационной системе • Структура информационной системы	2 часа
4	Классификация информационных	• Классификация информационных систем по признаку структурированности задач	2 часа

	систем	• Классификация информационных систем по функциональному признаку и уровням управления • Классификация ИС по степени автоматизации • Классификация по характеру использования информации • Классификация по сфере применения	
5	Корпоративная информационная система	• Понятие "корпоративная информационная система" • Требования к корпоративным информационным системам • Архитектура КИС	2 часа
6	Принципы построения и преимущества внедрения КИС	• Концепция построения КИС • Этапы проектирования КИС • Преимущества внедрения КИС на предприятие	2 часа
7	Краткая информация о корпоративной информационной системе "Фан"	• Предназначение КИС "Фан" • Объект автоматизации • Преимущества внедрения КИС на предприятие	2 часа
8	Информационные системы в составе КИС "Фан" и их назначение	• Численность персонала и его подготовка • Показатели назначения ИС • Эргономика и техническая эстетика системы • Описание информационных систем в составе КИС "Фан"	2 часа
9	Общие принципы работы в КИС "Фан"	• Общий вид системы и панель навигации • Вход в систему (авторизация пользователя) • Справка и быстрые клавиши • Полномочия пользователя	2 часа
10	Работа в разделе "Конкурсы"	• Просмотр и фильтрация конкурсов • Редактирование существующего конкурса • Добавление нового конкурса	2 часа
11	Работа в разделе "Проекты"	• Просмотр и фильтрация проектов • Редактирование существующего проекта • Добавление нового проекта	2 часа
12	Работа в разделе "Отчеты"	• Просмотр и фильтрация отчетов • Работа с навигацией	0,5 часов
13	Работа в разделе "Сообщения"	• Особенности раздела "Сообщения" • Входящие сообщения • Исходящие сообщения	0,5 часов
14	Работа в разделе "Уведомления по отчетам"	• Особенности раздела "Уведомления по отчетам" • Просмотр, фильтрация и обработка отчетов	1 час

15	Работа в разделе "Справочники"	• Подменю "Статусы конкурса" • Подменю "Типы исследования" • Подменю "Приоритетные направления" • Подменю "Эксперты" • Подменю "Дополнительные справочники"	4 часа
		Всего	28 часов

After the syllabus creating we an start to create or electron book.

2.3. The development of the e-book for the users of corporate information system

An electronic book (variously: e-book, eBook, e-Book, ebook, digital book, or even e-edition) is a book-length publication in digital form, consisting of text, images, or both, readable on computers or other electronic devices. It provides a continuity and completeness of a didactic cycle of training process, serves for the groups, individual or individualized training, corresponds to the training program and is intended for use in educational process.

Digital books assume obligatory using of information technologies which allow:

- to activate an educational process;
- to individualize training;
- to increase visibility in presenting of materials;
- to displace accents from theoretical knowledge to the practical;
- to increase interest of trainees to training.

E-books can have linear (strictly consecutive) and branchy (free movement at the rate) character. [16]

By creating of an ebook it is necessary to be guided by the following principles (Fig. 10):

Principle of quantization: splitting of the material into the sections consisting of modules, minimum volume, but closed by the contents.

Principle of completeness: each module has to have a theoretical kernel, control questions according to the theory and the tasks and exercises for the independent decision.

Principle of visibility: the modules must have visualization to help understand and learn new concepts, methods and affirmation.

Principle of divarication: each module has to be connected by hypertext links with other modules so that the user had a choice of transition to any other module. The principle of divarication doesn't exclude, and even assumes existence of the recommended transitions implementing a consistent study of the subject.

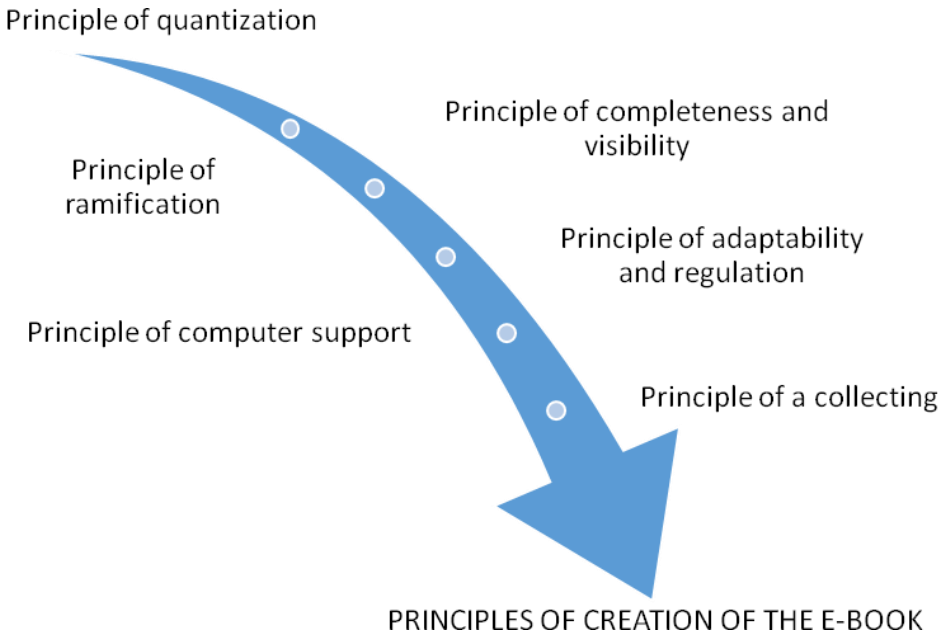


Figure 10. Principles of formation of an ebook

Principle of regulation: trainee independently controls the change of frames, has opportunity to cause any quantity of examples on the screen, to solve the tasks necessary for him, set by him or defined by the teacher, test himself by answering the test questions and doing tests, a given level of complexity.

Principle of adaptability: the system has to allow adaptation to needs of the specific user in the course of training, allow to vary depth and complexity of a studied material and its applied orientation depending on future specialty of the

trainee, in relation to needs of the user to generate an additional illustrative material, to provide graphic and geometrical interpretations of studied concepts and the solutions of tasks received by the pupil.

Principle of computer support: at any moment of work trainees can get the computer support exempting him from routine work and allowing to concentrate on an essence of a material studied at present, to consider bigger quantity of examples and to solve more problems. And the computer not only performs bulky transformations, various calculations and graphic constructions, but also makes mathematical operations of any level of complexity if they are already studied earlier also, checks the received results at any stage not just at the level of the answer.

Principle of a collecting: electronic educational editions have to be executed in the formats, allowing to pack them in uniform electronic complexes, to expand and supplement them with new sections and subjects also, to form electronic libraries on disciplines or private libraries of trainees and teachers. [17]

In a basis of technology of preparation of the ebook it is possible to put one of possible alternative approaches: bottom-up and top-down.

In development of the ebook for users of CIS "Fan" top-down design was used.

Top-down design involves a very thorough conceptual and technological elaboration of the product made with all the expected ways to use features and integration in the educational process.

The main design stages of the e-book in this approach are:

• definition of the educational purposes (knowledge, skills), bringing-up and expanding aims using of those additional features that give using of an ebook;

• formation of the content of the discipline, which can be extended in case of use of the digital book;

• specification of the program on topics or modules, choice of methods of training;

• design of modules and scenarios of work of the electronic book;

• the solution of questions on creation and maintaining a database for monitoring and management of training process on the basis of the ebook (by using network technologies);

• approbation of the e-book.

Existence of the working program allowed to proceed to direct development of the ebook for users of CIS "Fan".

As the development tools were selected the software environment Adobe Dreamviewer, editor Adobe Photoshop, software development environment Visual Studio. Digital book will have the form of a site converted into a unified exe-file.

These development tools were chosen for the following reasons:

- complete control of process of creation of ebook;
- convenience of work with the text and graphics;
- copyright of the finished software product;
- rather small size of the received product.
- integration into all operating systems.

The general structure of the e-book can be presented as follows (Fig. 11):

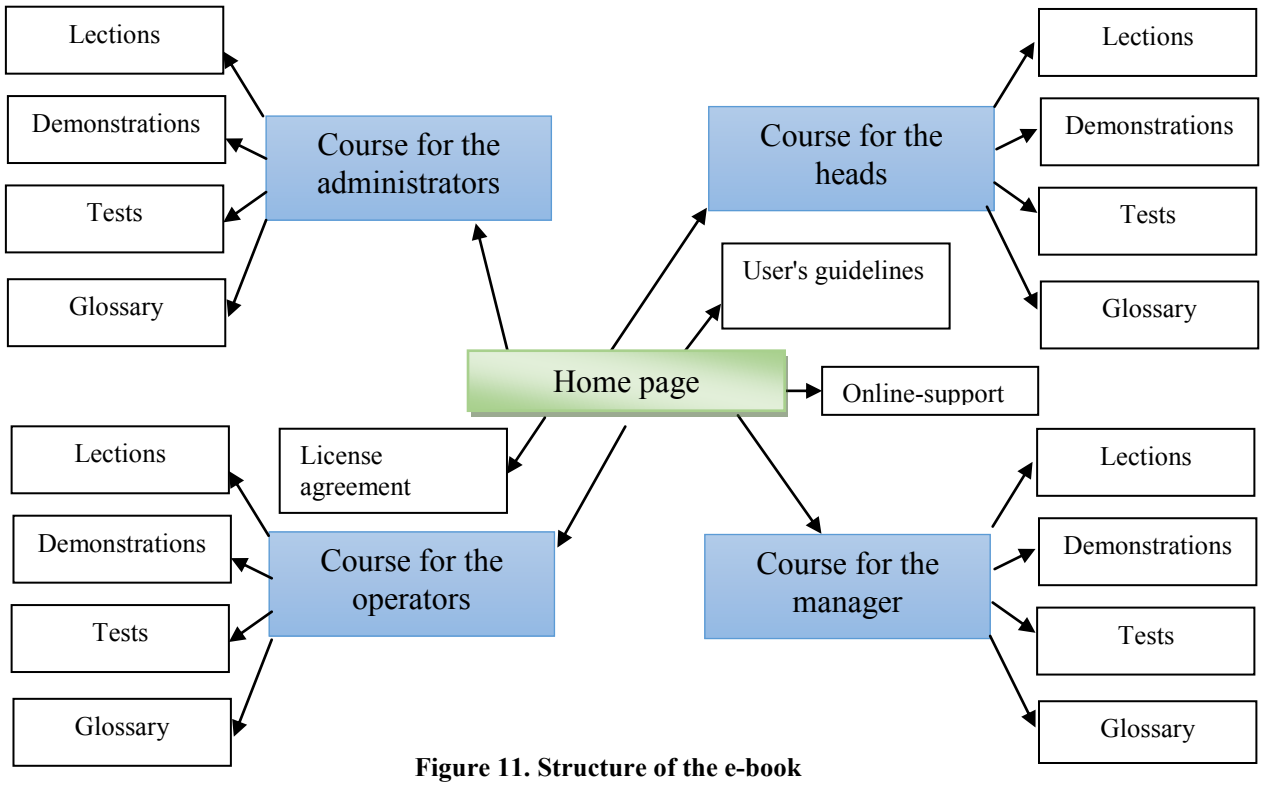


Figure 11. Structure of the e-book

When the structure of the ebook is defined, we can begin to implement it.

The process of developing digital book is advisable to start with a design for what I was used editing graphic editor Adobe Photoshop.

Adobe Photoshop — is the multipurpose graphic editor which is developed and extended by Adobe Systems firm and widely used in web-design. With this editor was created the banner and tutorial files with images and buttons background of the site. At creation the gradient and solid filling, decorative brushes of various sizes, artistic filters and fonts were applied (Fig. 12). Colors were chosen muted continuing the general theme of corporate information system "Fan".

Figure 12. The banner of the digital book

Further for the ebook was defined the unified style of the content. The stylesheet and site code on the basis of which the electronic book is created, were made up using the program Adobe Dreamviewer.

Adobe Dreamweaver is a web design and development application that provides a visual WYSIWYG editor (colloquially referred to as the Design view) and a code editor with standard features such as syntax highlighting, code completion, and code collapsing as well as more sophisticated features such as real-time syntax checking and code introspection for generating code hints to assist the user in writing code. The Design view facilitates rapid layout design and code generation as it allows users to quickly create and manipulate the layout of HTML elements.

Advantages of the editor against the others is:

- backlighting of a code allowing quickly to scan it and to find probable mistakes;
- auto substitution of a code permitting to save time and to avoid

typographical errors;

- mode of a code and the design mode allowing at the same time to write a code and see its result;
- file manager performing the automatic updating of links with changing the file name;
- possibility to input and editing of a HTML code, creation of scripts and control of the stylesheet of CSS.

Cascading Style Sheets or CSS, which can be created in Dreamviewer, were used by developing of the electronic book to determine in advance the design of the site content.

CSS is the result of further development of HTML and allow to separate the semantic contents of a page and its appearance.

The stylesheet needs to be written only once at site creation for each of devices on which information output is planned. Besides the stylesheet can be uniform for the whole site. And, therefore, it won't be necessary to repeat the same descriptions of styles on each of pages.

Placement of all style information in one external file opens to us one more useful opportunities - changing the contents of only one style file, we can change all design of a site in only a few seconds.

Stylesheet is realized by creating a file with the .css expansion. In the file the key tag must be designated and after it in braces all parameters which will have this tag are should be listed.

```
/* STYLE OF DESIGN OF THE MAIN CONTENT OF THE WEB PAGE DISPLAYED IN THE WINDOW OF THE BROWSER */
body {
  margin: 0px;
  color: black;
  font-size: 12px;
  font-family: Arial;
  background-color: #545454;
```

```
  background-image: url(images/page_bkgd.jpg);
  background-repeat: repeat-x;
}
```

This paragraph sets the style to the text in tag <body>:

margin: 0px – characterizes space size at once for all parties of an element (in our case there is no space).

color: black – means color of the text in a site body (in our case black).

font-size: 12px – expresses the font measure (12 size).

font-family: Arial, Verdana, Univers – indicates family of fonts which can be used in the main text. When the browser meets the first font in the list, it checks its existence on the computer of the user. If such font isn't present, the following name from the list undertakes and also is analyzed on presence. Therefore multiple fonts increase probability that at least one of them will be found on the client computer.

background-color: #545454 – indicates the color of a background of the page (in our case it is gray color). Color is specified in figures in order that on various computers its shade didn't change.

background-image: url(images/page_bkgd.jpg) – indicates background image which will fill the page. In parenthesis we write the path to the picture on the computer (in our case, the background image is a vertical strip of the gradient from light gray to dark gray).

background-repeat: repeat-x – defines, whether background drawing will repeat (the repeat-x parameter specifies that drawing will repeat only horizontal).

Also CSS permits to create classes. Classes can be applied when it is necessary to define style for an individual element of the web page or to set different styles for one tag. By jointly using with tags the syntax for classes will be following:

Tag.Class_name { attribute1: value; attribute2: value; ... }

In the style table initially the desirable tag, and then, through a point the name of a class must be written. It is also possible to set at first a class name after a point, and then through the space to specify a tag. To specify in HTML code that

the tag is used with a certain style, to a tag must be added the parameter: class = "Class_name".

```
/* CLASS OF THE LEFT PANEL OF NAVIGATION */
.leftnavigation {
width: 192px; /* panel width 192 pixel */
margin: 70px 0px 0px 0px; /* space 70th pixel from above */
padding-left: 8px; /* distance between the text and its frame at the left (for our ebook this value amount 8 pixel) */
float: left; /* text alignment (here – on the left side) */
list-style-type: none; /* using of different markers for different elements of the list (is disconnected) */
}
/* STYLES OF THE TAG IN THE CLASS */
.leftnavigation a {
margin-left: 0px; /* the space is absent */
width: 156px; /* panel width 156 pixel */
padding-left: 15px; /* distance between the text and its frame at the left (15 pixel) */
padding-top: 5px; /* distance between the text and its frame atop (5 pixel) */
padding-right: 20px; /* distance between the text and its frame at the right (20 pixel) */
padding-bottom: 5px; /* distance between the text and its frame in the bottom (5 pixel) */
float:  left;  /*  text alignment (at the left) */
color: #364957; /* color of a font (darkly gray) */
font-size: 10px; /* size of the font 10 pixel */
font-weight: bold; /* font saturation here - bold) */
font-family: Verdana, Arial, Helvetica, sans-serif; /* family of applied fonts */
text-decoration: none; /* scenery of the text (is absent) */
```

background-image: url(images/nav_normal.jpg); /* the background image in a tag */

background-repeat: repeat-x; /* horizontal image repetition */

background-position: 0px 0px; /* initial provision of the background image (the top left angle) */

border-bottom: 1px solid #999/*color of the frame (shade black) */;

}

/* ELEMENT AS LONG AS AIMING THE CURSOR */

.leftnavigation a: hover {

color: #ffffff; /* color of a font at hovering with the cursor (white) */;

background-image: url(images/nav_down.jpg); /* background drawing at hovering with the cursor */;

}

In the same way we defined the styles of tags of the headings <h1> and <h2>, links <a> also, created the classes for backgrounds and styles of design of the main text, a banner of a site and the bottom block.

The main part of the e-book is written in the HTML language.

HTML or HyperText Markup Language is the standard markup language used to create web pages.

HTML is written in the form of elements consisting of tags enclosed in angle brackets (like <html>). HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent empty elements and so are unpaired, for example <img>. The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags).

The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page. HTML describes the structure of a website semantically along with cues for presentation, making it a markup language rather than a programming language.

First of all, after opening tag <html> in the html-document, we need to

specify a way to the external stylesheet. It's managed in the tag <head> together with the tags of groups <meta> and <title>.

<head>

<title>Электронный учебник КИС "Фан"</title>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

<meta name="description" content="Этот сайт создан Розыходжаевой Дилдорой Аброровной для обучения пользователей КИС "Фан"" />

<link rel="stylesheet" type="text/css" href="stylesheet.css" />

</head>

The tags specified in a code perform the following functions:

title – sets the name of a tab in a browser, i.e. name ebook in a browser

meta http-equiv – is intended for metatag converting (the tag storing information intended for browsers and search engines) in the html heading.

meta name – determines the name of a metatag, indirectly establishes its mission.

link rel – specifies a way to the stylesheet:

- rel = "stylesheet" - specifies link type; in this case it is the link to our stylesheet
- type = "text/css" - specifies type of the file to which the tag refers.
- href = "styles.css" - defines a way to the external CSS file which may differ depending on the way of its storing.

The site is divided into three blocks (Fig. 13):

1 . Banner of the site

2 . The main block with a content

3 . Site footer

The banner of the site shows the name of the electronic book and the most important files by working with it. This block is displayed on all pages in fixed form.

Лицензионное соглашение | Руководство пользователю | TV

The element is a block element and is intended to highlight the document fragment to change the type of content. Typically, the appearance of the block is controlled by styles. If we don't want to describe the style every time inside a tag , we can mark out style in the external stylesheet and add an attribute "class" or "id" with the selector name.

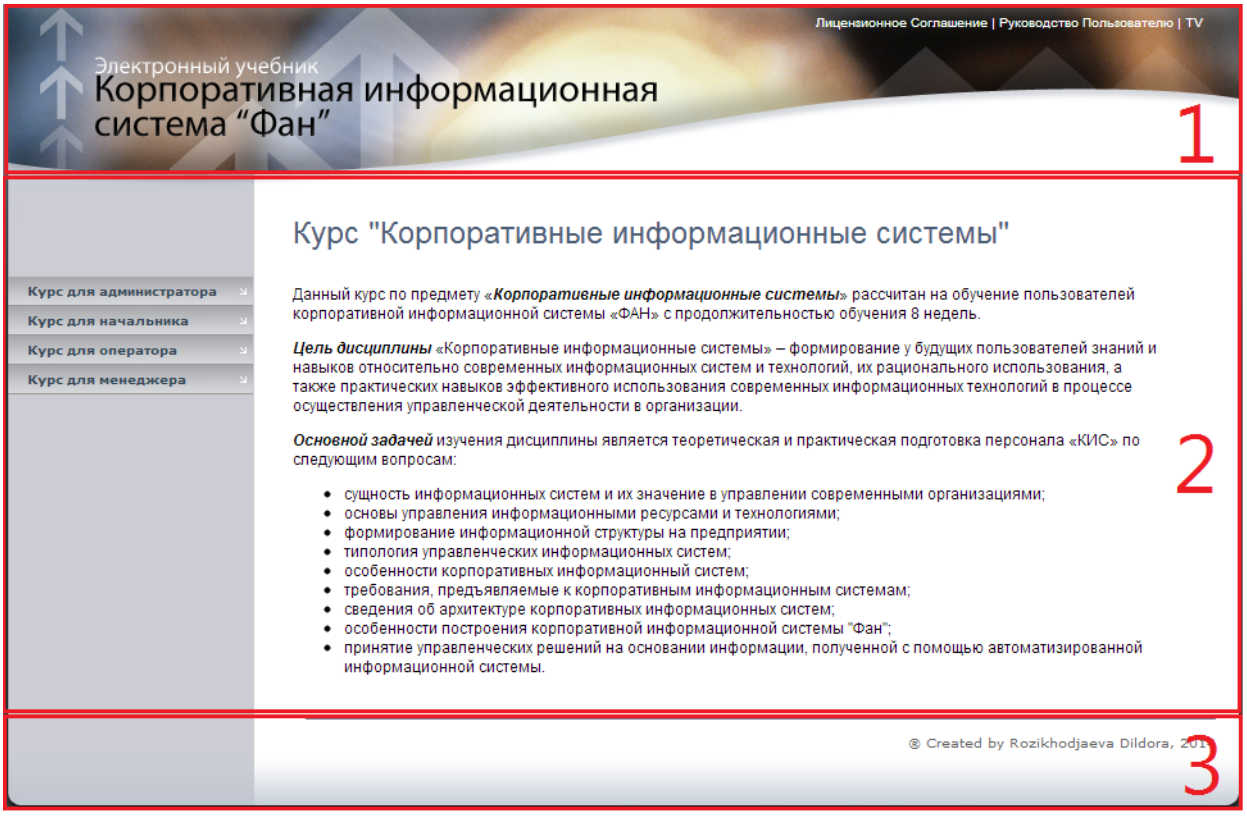


Figure 23. The main blocks of the site

 defines a block of the document's top with the background image. Next in this unit is added the nested block with the banner navigation . This block stores the License Agreement, User's Guide and the program TeamViewer, designed to provide online support to users of the system.

TeamViewer is an intuitive, fast and secure application for meetings and

remote control. As an all-in-one solution, TeamViewer can be used to:

- show your desktop for meetings, presentations or collaboration.
- use the TeamViewer meeting function, e.g. for training sessions.
- use the meeting apps for Android and iOS to participate in a meeting while being on the road.
- provide ad-hoc remote support to colleagues, friends or customers.
- establish a connection between computers with different operating systems. TeamViewer runs under Windows, Mac OS or Linux.

With the help of the TeamViewer program it's possible to realize remote control of a certain computer or organize webinars for the whole groups with demonstration of own screen using an electronic board, record of occupation and storage of data, distribution of authority between other participants and transfer of all types of messages (Fig. 14).

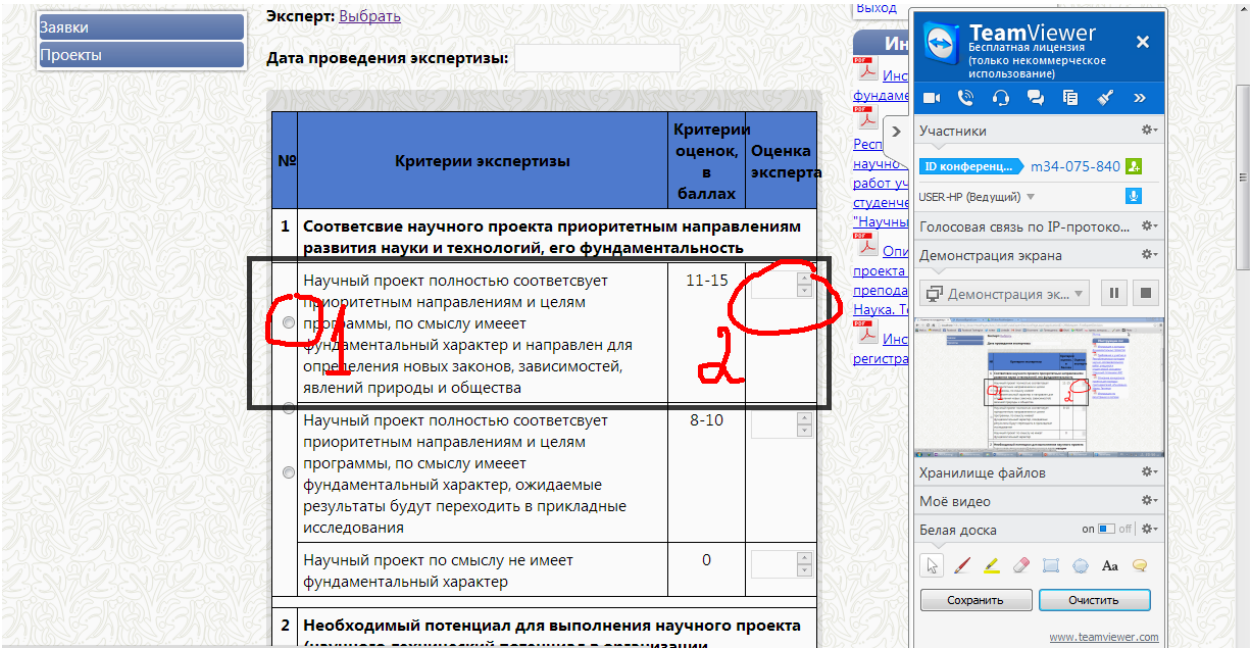


Figure 34. The organization of webinars using TeamViewer

Next was developed main content block, which is described in the tag and divided into two parts: a left block of navigation and block with basic information.

The block of the left navigation contains links to navigate through the elements inside the section (lectures, demonstrations, tests or glossary). The main

page of this block contains links to the page of a particular type of the ebook's users (administrator, head, operator, manager).

```
<ul class="leftnavigation">
<li><a href="lk1.html" >Курс для администратора</a></li>
<li><a href="lk1.html" >Курс для начальника</a></li>
<li><a href="lk1-operator.html" >Курс для оператора</a></li>
<li><a href="lk1.html" >Курс для менеджера</a></li>
</ul>
```

The <ul> tag defines the beginning of the marked list each element of which begins with the tag <li>. To the <ul> tag is employed the stylesheet class "leftnavigation", so <li> tag will also inherit all of its properties. With the help of the tag <a href> links to other pages of the digital book (hypertext) were set.

Basic information block contains the fundamental knowledge, on the transmission of which is directed given e-book. The main page of this unit reflects the purpose and objectives of the taught course (Fig. 15).

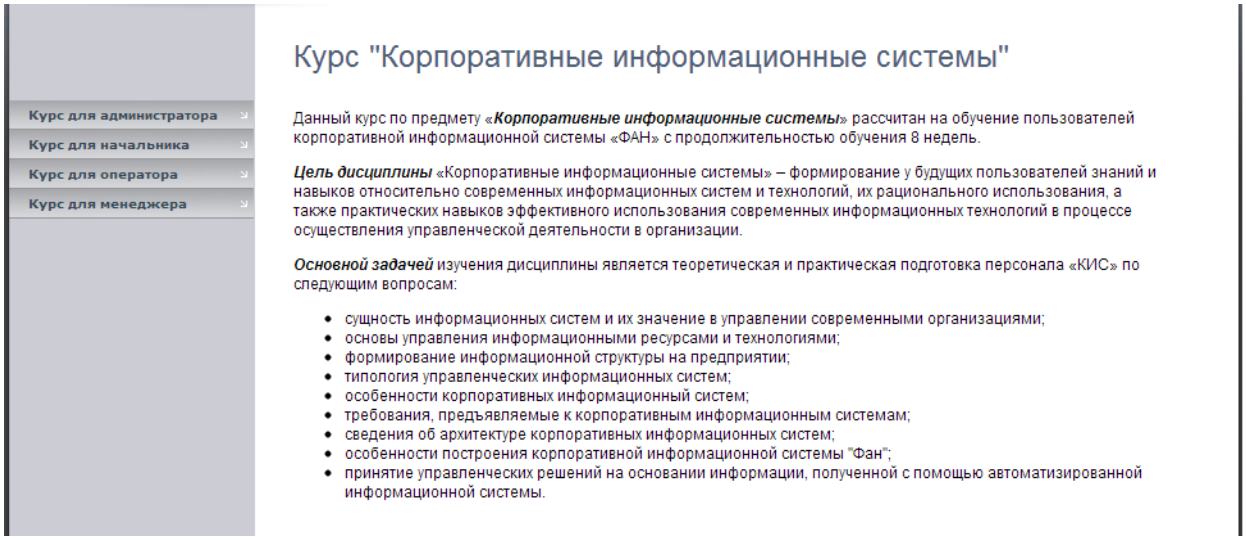


Figure 15. The main block of the site

```
<div class="content">
<div class="contentleft">
<h1>Курс “Корпоративные информационные системы” </h1>
/* TEXT INFORMATION */
</div>
```

 class defines the background image of the main block and its boundary indentation, describes the position and typeface of the basic information unit.

The footer of a site stores the information about the author of the e-book.

® Created by Rozikhodjaeva Dildora, 2014

By transition to the training page on a site appears an additional block of navigation (Fig. 16) intended for junction on the ebook's sections:

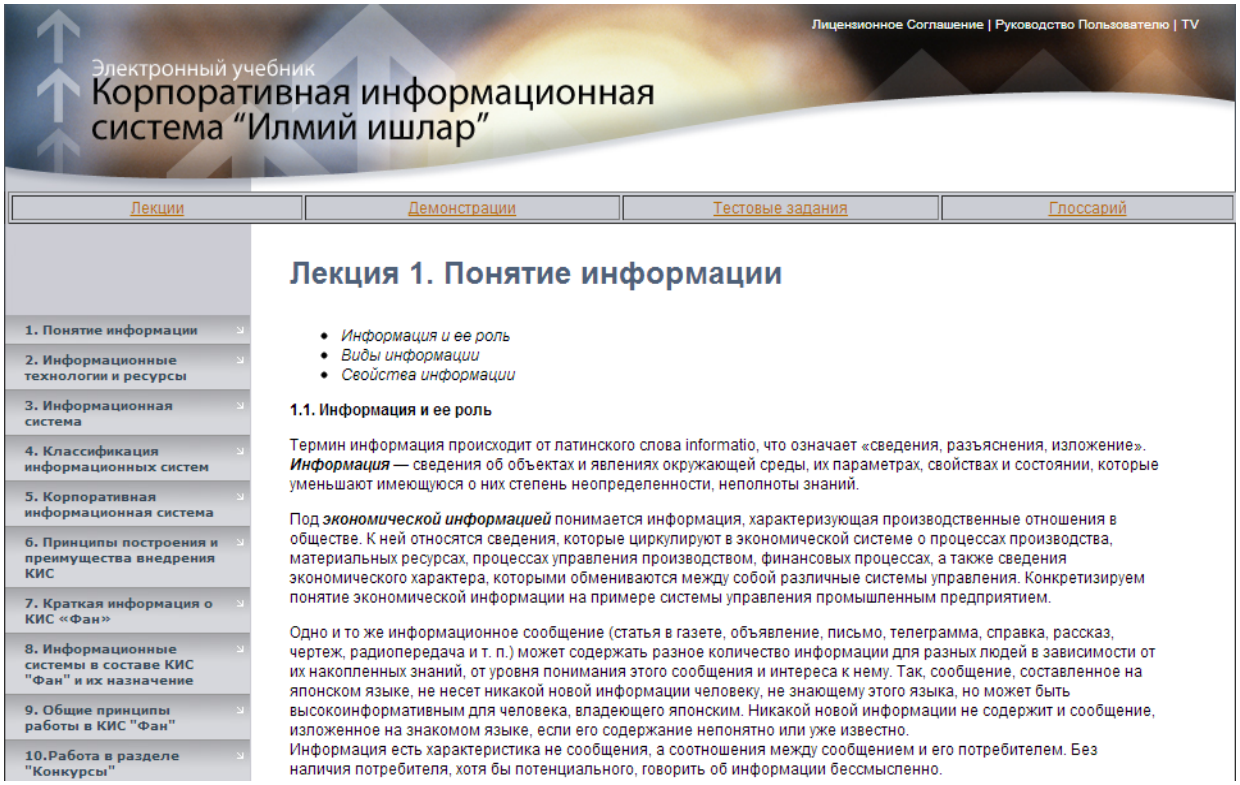


Figure 4. An appearance of the training page

This block is executed in the form of the table, contents of cells of which refer to the first elements of those sections which they indicate.

<table width = 98% align="center" bgcolor=cbcdd4 border="1">

<tr>

<td width="23%" align="center" >

Лекции</td>

<td width="25%" align="center">

Демонстрации</td>

<td width="25%" align="center">

Тестовые задания</td>

<td width="23%" align="center">

Глоссарий</td>

</tr>

</table>

Contents of sections is individually for each type of users.

Section "Lectures" contains the main theoretical material of the course (Fig.17).

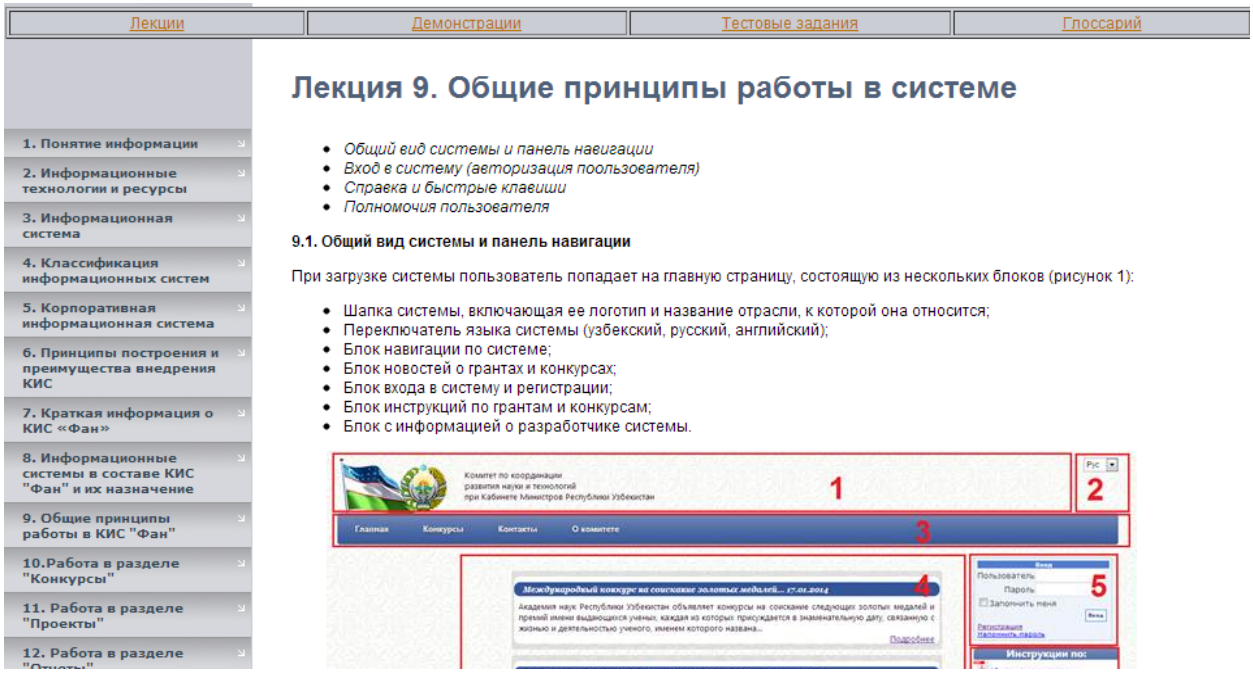


Figure 5. E-book handout

The first part of the lectures gives knowledge on the theoretical foundations of information systems, and the second teaches to work in a specific information environment.

In preparing the lecture material the following html tags were used:

<h1> - <h6> - tags defining headings texts.

 or <b> - bold typeface

 or <i> - italic typeface

, <li> - creating a bulleted list

<p> - text formatting

 - newline

<img src=…> - insert images into a text

Section "Demonstrations" contains video tutorials to facilitate rapid attainment of skills to work in the system (Fig. 18).

Video lessons are executed in the "FastStone Capture" program and framed by titles at the beginning of each record. Video lessons are available for download by clicking on the links with their names.

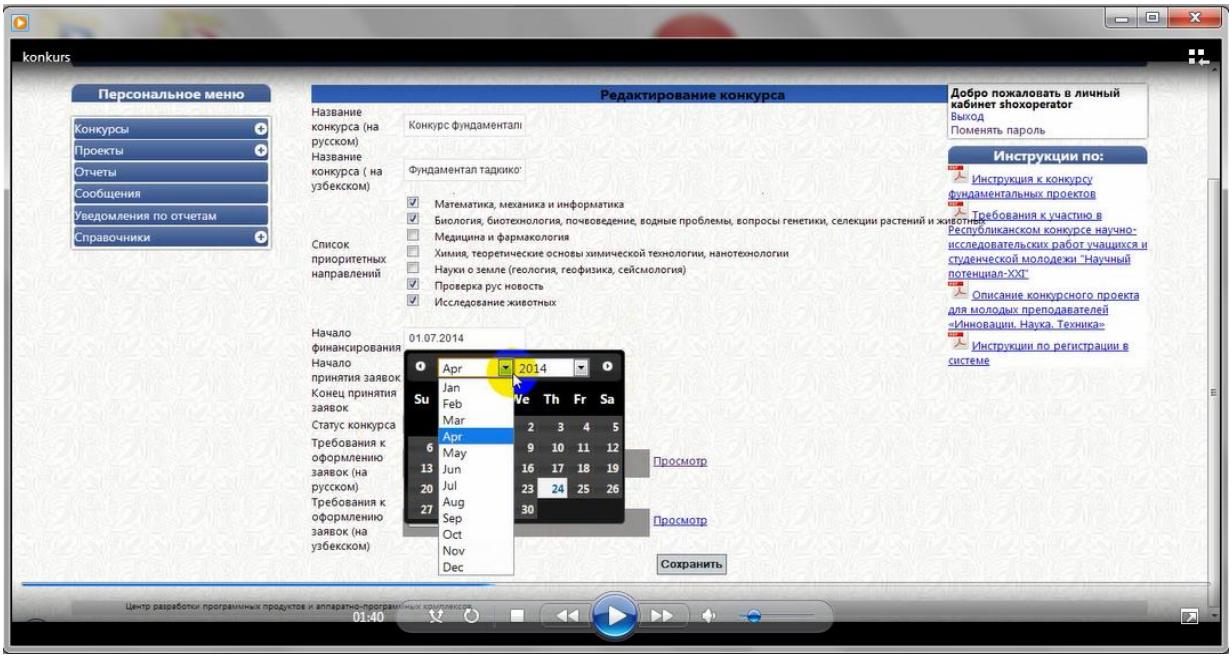


Figure 18. Video tutorial in the section "Demonstrations"

Section "Tests" contains test tasks for each lecture theme helping to determine how deeply the trainee internalized the topic (Fig. 19).

Each test on the page has the following format:

<p>1) Information is…

<input type=radio value=1 name=q1> that from which data can be derived

 <input type=radio value=0 name=q1> knowledge stored in electronic form only

 <input type=radio value=0 name=q1> knowledge and information on optical media just in the form of text and graphics

 <input type=radio value=0 name=q1> industrial relations, leading to the formation of knowledge </p>

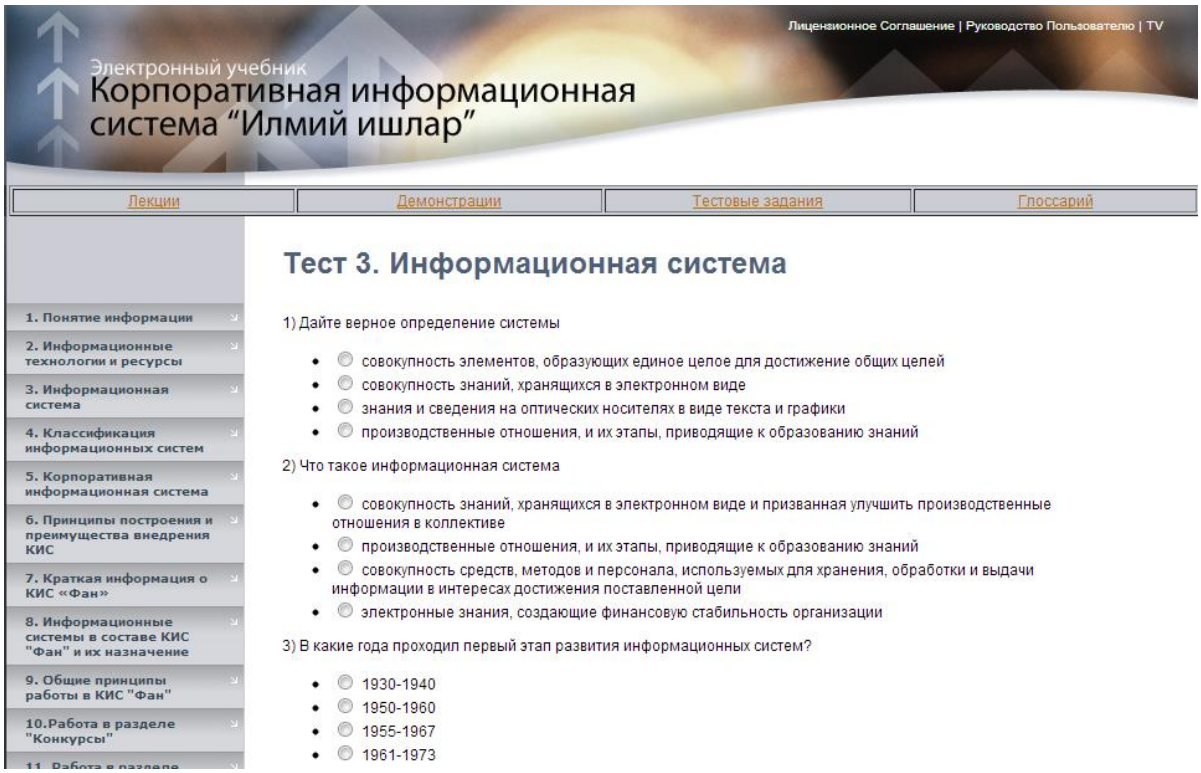


Figure 19. Page with tests

Variants of answers are dedicated to radio buttons <input type=radio value=0 name=q1> where "value=1" means that for a choice of the given version of the answer will be assigned 1 point; "value=0" – option without points; "name = q1" - the name assigned to this test questions (each test question has its own name).

Set of all tests is contained in the <form> tag with the following parameters:

<form name=test onSubmit="newWindow(test)">

The event "onSubmit" arises by sending the form "test" after pressing the button with which it is coded.

Under tests we add buttons for cleaning of fields and calculation of results (Fig. 20):

```
<input name="reset!" type="reset" value="Очистить поля">
<input type=submit value="Узнать результат">
```

Figure 20. Buttons for working with tests

By pressing the "Get results" button arise a calling of the newWindow function which makes a calculation of points.

Calculation of total points and their conclusion to the screen are organized with help of language of the scenarios JavaScript.

JavaScript is a dynamic computer programming language. It is most commonly used as part of web browsers, whose implementations allow client-side scripts to interact with the user, control the browser, communicate asynchronously, and alter the document content that is displayed. It is also being used in server-side programming, game development and the creation of desktop and mobile applications.

For work with tests before the body of the html-document we described the following function:

```
<script language="javascript">
var tr;
function newWindow(form){
tr = 0
for (i=0; i<form.elements.length-1; i++){
        if(form.elements[i].checked){
                tr += parseInt(form[i].value)
        }
}
if (tr <= 5) {
        alert("Вы ответили правильно на "+tr+" из 10 вопросов, материал
        усвоен вами не в полной мере ")
}
```

```
if (tr > 5) {
        alert("Вы ответили правильно на "+tr+" из 10 вопросов, материал
        вами усвоен")
}
form.submit = false
}
</script>
```

The function has the following algorithm:

1. Defines a fluent that will summarize points (initially it is set to zero).

2. Function iterates over all answers given on the test tasks and, if found among them nonzero, adds them to the summation of fluent.

3. Depending on the final number of correct answers, the program displays a message indicating success or failure passage of the test (Fig. 21).

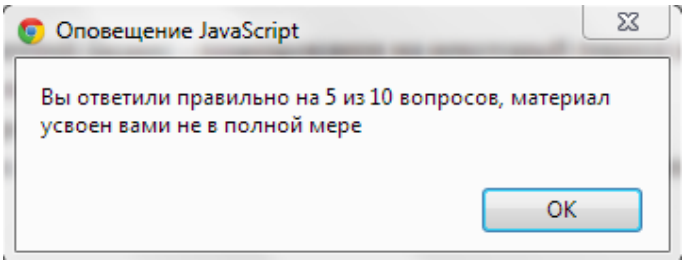


Figure 1. Notification of the test result

Section "Glossary" contains the basic terms and concepts which the user will face during the work in system (Fig. 22). All terms are divided into groups of letters. In different places of the page are established marks (anchors) which define places to which a certain button will realize an overjump. For creation of marks was used the tag where as elements for transition were established separate letters.

```
<span id="y"></span>
```

Links that provide a transition to the marks have the form:

```
<li> <a href="#a">  Terms on the letters A - C </ a> </ li>
```

I.e. in a tag of creation of the link is specified the hashtag with specified element (letter), assigned to the mark.

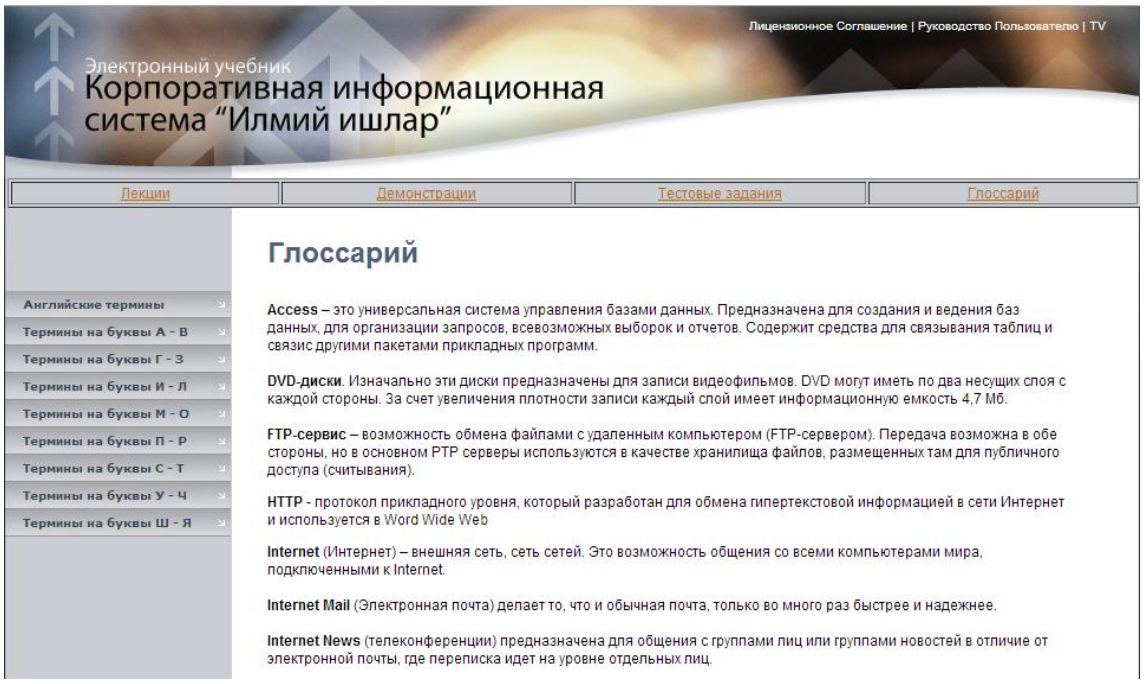


Figure 22. Glossary of the ebook

When the development of the digital book is finished begins its approbation and preparation for exploitation.

2.4. The formation of guidelines for users of the system

A user guide (guideline) or user's guide, also commonly known as a manual, is a technical communication document intended to give assistance to people using a particular system. It is usually written by a technical writer, although user guides are written by programmers, product or project managers, or other technical staff, particularly in smaller companies.

User guides are most commonly associated with electronic goods, computer hardware and software.

Most user guides contain both a written guide and the associated images. In the case of computer applications, it is usual to include screenshots of the human-machine interface(s), and hardware manuals often include clear, simplified diagrams. The language used is matched to the intended audience, with jargon kept to a minimum or explained thoroughly.[16]

Typical user guide contains the following modules:

- Introduction;
- Purpose of the system;
- Conditions of using of the system;
- Preparing the system to work;
- Description of operations;
- Emergency situations.

Introduction includes links to the connected documents and information on how it is best of all to use this manual.

Purpose of the system. This section of the document User's guide has to contain information about the appointment of the system, its purposes and tasks.

Conditions of use of system. This section of the document includes all those factors which are necessary for correct work of system. It can be requirements to hardware and to qualification of users.

Preparation of system for work. This section of the document contains the step-by-step instruction for the application's launch. This phase can also include the installation of additional applications (if necessary), identification, authentication, etc.

Description of operations. It is the main section of the document User's guide which contains the step-by-step instruction for performance of this or that action by the user.

If the work of the automated system affects the whole business process, in the user's guide before the description of operations it is expedient to provide information on this process, its appointment and participants. The similar decision allows the person to present accurately his role in this process and those functions which are realized for him in the system.

Next in the User Guide should be provided a description of the functions split into separate operations. It is necessary to allocate the subsections describing functions of this process, and action which need to do to accomplish them.

The user's guide can be represent as the short reference book on the main functionality of the program or as the full manual. The technique of a statement of

a material will depend in this case on the volume of the program and requirements of the customer. As more the system will be described, as less questions will be arose at the users.

Emergencies situations. This section of the document contains step-by-step instructions of actions in case of refusal works of the system.

User's guide of CIS "Fan" includes two modules:

- Introduction;
- Description of the operations performed by users of CIS "Fan".

Introduction of the Guidelines contains data about a sphere of using of the document, the requirement to the level of preparation of users and requirements to their software (Fig. 23).

1. Введение

1.1 Область применения документа

В настоящем документе приведены основные сведения, необходимые для организации процесса эксплуатации КИС «Фан». Документ содержит перечень входящих в них компонент, используемых персоналом в процессе управления и обслуживания КИС. В ходе работы с комплексами КИС «Фан» персонал руководствуется описаниями и правилами выполнения операций, приведенными в данном документе. Для более эффективной работы сотрудникам рекомендуется ознакомиться с методическими материалами, перечень которых приведен в электронном учебнике «Корпоративные информационные системы».

1.2 Требования к уровню подготовки

Figure 6. Fragment of the first module of the User's guide

The module of the description of operations includes the full step-by-step manual of actions for four types of users:

- Administrators
- Heads
- Operators
- Managers

This manual besides text descriptions contains images in the form of screenshots. Used style and language are clear and available to estimated audience

and don't contain a slang and undescribed reductions (Fig. 24).

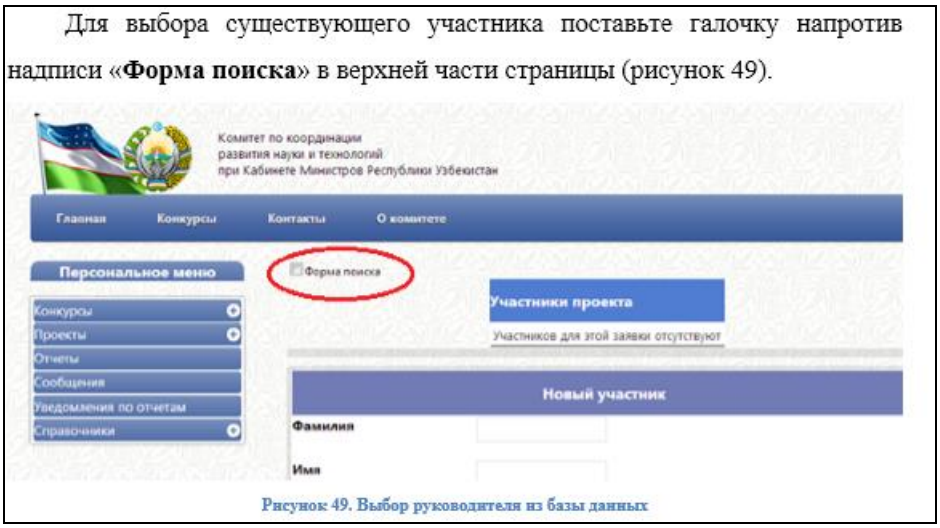


Figure 24. Fragment of the module of the description of actions from the User's guide

2.5. The formation of the license agreement

EULA - end-user license agreement — is an agreement between the owner of a software or information and its user.

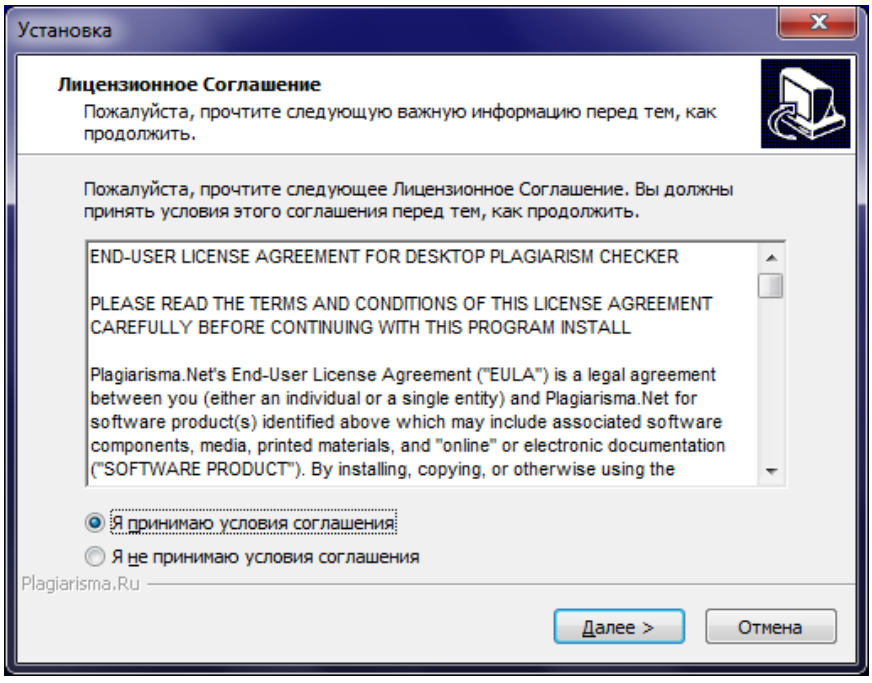


Figure 75. An example of the window with EULA

Typically, the software user agrees to the terms of use of the program by choosing in a checkbox the phrase offering to agree with terms (Fig. 25). Also,

License Agreement can be presented as a separate document accompanying the program.

Many EULAs assert extensive liability limitations. Most commonly, an EULA will attempt to hold harmless the software licensor in the event that the software causes damage to the user's computer or data, but some software also proposes limitations on whether the licensor can be held liable for damage that arises through improper use of the software and its data.

Main stages of preparation of the agreement:

• analysis and specification of a subject of the transaction and other essential conditions;

• choice of an optimum way of the conclusion of the contract (single, frame with additional orders, public offer);

• detailing of the order of execution of the contract and execution reports;

• solution of questions of responsibility on the contract;

• coordination of the draft agreement with the customer;

• the subsequent maintenance (by separate inquiry coordination with the contractor, editing). [16]

One of the important purposes of the license agreement is the reservation of questions of using of intellectual property and, thereby, protection of copyright. In this regard, for CIS "Fan" the license agreement represents the document regulating the relations between the owner of information and its user.

The owner of information is the subject of information relations possessing the right of possession, dispose and using of information resources under the contract with the owner of the information.

The user of system is a person, a group of persons or the organization using the services of an information system for information or other tasks.

The proprietor of information is the subject of information relations possessing a legal right to possess, use and dispose of information resource.

The license agreement of CIS "Fan" includes the following items:

1. The basic concepts and the definitions opening an essence of objects of this

Agreement;

2. The general provisions including the purpose and tasks of the document (Fig. 26);

2. Общие положения

2.1. Настоящий Регламент регулирует отношения между Владельцем в лице Администратора, Начальника, Оператора или Менеджера Системы и Пользователями, возникающие в связи с использованием Системы.

2.2. В случае, если отдельные вопросы не урегулированы настоящим Регламентом или иным соглашением сторон, к отношениям сторон подлежит применению право Республики Узбекистан.

2.3. Положения настоящего Регламента устанавливаются, изменяются и отменяются Собственником в одностороннем порядке без предварительного уведомления. С момента размещения в Системе новой редакции Регламента предыдущая редакция считается утратившей свою силу. В случае существенного изменения положений Регламента, Администратор извещает об этом Пользователей путем размещения в Системе соответствующего сообщения.

Figure 86. General provisions of the license agreement

3. The owner of information with his basic rights in system;

4. The user of CIS with his basic rights in system;

5. The forbidden actions with information about what in system can't be done both to Owners of information, and Users of system;

6. Guarantees and the responsibility of the parties describing system of conditions, providing legal opportunities for realization of the rights and freedoms;

7. Предупреждение о возможной юридической ответственности

За разглашение (нарушение конфиденциальности) информации, т.е. совершение действий, в результате которых информация, доступ к которой ограничен в соответствии с законом (государственная, служебная, коммерческая тайна, различного рода профессиональные тайны и т.д.), становится известной посторонним лицам без согласия на то ее обладателя, а также за незаконное использование объектов интеллектуальной собственности (произведений науки, литературы, искусства, программ для ЭВМ и баз данных, фонограмм и т.д.), в том числе путем размещения их копий или частей в сети Интернет, законодательством Республики Узбекистан установлена гражданско-правовая, административная и уголовная ответственность.

Figure 27. Warning of possible legal liability

7. Warning of possible legal liability, describing system of measures which can be undertaken at violation of this contract (Fig. 27).

Thus, by determining the license agreement as defined contract between the owner and an end user of information, we define all the conditions for correct using of information in corporate information system "Fan".

Once all the elements of the training program are collected, we can inchoate to the approbation of application of the training complex.

2.6. Approbation of application of the training complex

The electronic book passed approbation in Committee on coordination of development of science and technologies. The individual method of training which includes passive (lectures, the glossary) and active (demonstrations, testing) parts was applied.

By means of lectures trainees gained basic knowledge on corporate information systems. The glossary helped them to understand and memorize technical terms important in their work.

Thanks to the system of monitoring being a part of the ebook was organized a possibility of processing and fixing of test result by computer. A trainee, teacher, methodical services and administration can use data of monitoring. The percent of correctly solved tasks allows the trainee to see how is grasped by him a training material, thus he can look, which structural units are not mastered by him fully and subsequently review this material. Therefore, trainee in some extent can independently operate with training process.

Existence of an online support in structure of the electronic training allowed to organize a quick help to users in technical and practical problems which arise during work in system. Uniqueness of the TeamViewer program allowed to lead a free webinar (online lesson) with a group of 25 people.

License agreement, available in e-book, allowed users to learn about their rights and responsibilities, as well as prohibitions, which are established in system

and helps to avoid possible problems and conflicts.

The user's guide and the "Demonstrations" section became the excellent assistant for independent mastering of practical using of CIS "Fan".

Thanks to the correct approach to the stage of introduction of system we have not only avoid the problems arising at adaptation and work of users in system, but also create at them a positive representation about it.

Yakubov Komoliddin, manager of system:

"When we began to work with the electronic book "Corporate information system "Fan", we understood that it:

• facilitates to us understanding of a studied material at the expense of different ways of giving of a material;

• allows to focus on the essence of the subject, to consider bigger quantity of examples and to solve more problems;

• carries out a role of infinitely patient mentor, providing a large number of practical explanations and repetitions.

Most importantly yet users will understand how much benefit can bring them transition from paperwork to using of an information system that at first, giving the impression of new responsibilities and more work, causing a negative attitude towards the CIS."

CHAPTER 3. LIFE SAFETY

3.1. Evaluation of the psychophysiological stress on a human being

Psychophysiology is a science studying physiological mechanisms of the subjective phenomena, conditions and individual distinctions. Research of physiological mechanisms of mental processes on system, neural, synaptic and molecular levels is the primary goal of psychophysiology.

There are distinguished the following kinds of psychophysiological loadings:

1. Monotony - the mental condition of the person caused by sameness of perceptions or actions. There are two kinds monotony:

- monotony at the expense of an information overload of the same nervous centers as a result of receipt of a great volume of identical signals at repeated repetition of uniform movements (for example, work on conveyors with small operations);
- monotony caused by a sameness of perception in the cause of a constancy of the information and a lack of the new information (for example, long supervision over instrument panels in expectation of an important signal).

2. Fatigue - process of falling of working capacity, the temporary breakdown arising at performance certain physical or mental work.

Distinguish:

- rapidly growing exhaustion (primary) - is caused by performance of work for which considerable physical efforts or considerable tension are required;
- slowly growing exhaustion (secondary) - is characterized by gradual decrease in working capacity as a result of habitual, but excessively long and monotonous work.

For the fatigue prevention is needed:

- the optimal organization of a mode of work and rest;
- the rational organization of labour process;

– an effective training for the purpose of fast mastering by labour skills.

3. A working posture. The basic postures of the person in manufacture are the poses of "standing" and "sitting" what it is necessary to consider while projecting a workplace and the working pose answering to the given kind of work. It is necessary to aspire that the working posture was as close as possible to the natural attitude of a man, because it will be characterized by the lowest energy costs in comparison with the derivatives of these postures.

***4. Emotional and mental overwork*.** Mental activity (as a muscular) primarily is an activity of the central nervous system, its top division - the cortex of the human brain. Mental activity (as a muscular) primarily is an activity of the central nervous system, its top division - the cortex of the human brain. At mental work, as in the physical, changes metabolism but increase of the general exchange insignificantly (no more than 10-15%); in difference from a physical activity at mental work there is a narrowing of vessels of extremities and expansion of vessels of an internal, pulse changes slightly. At the same time, if for mental work it is required considerable nervously-emotional pressure considerable changes of a blood pressure, pulse, increase of level of sugar in blood are possible

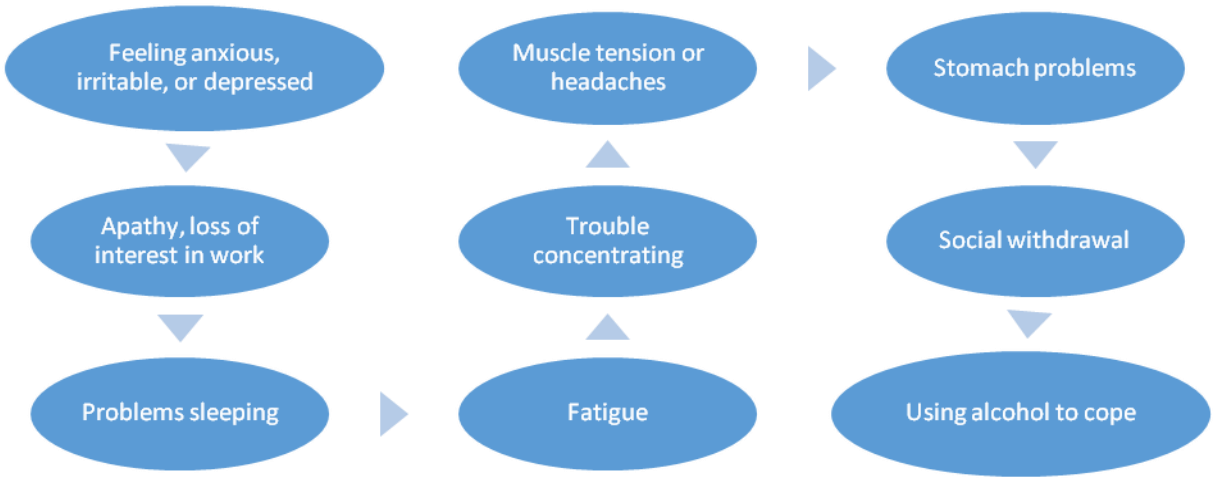


Figure 28. Signs and symptoms of excessive job and workplace stress

5. The stress is a reaction of adaptation to undue and extreme conditions - physiological and mental. To ensure the safety it is necessary to organize the production process so, that it excluded the stresses. It is necessary that in an emergency the stress was not the cause of anomalies and not worsened production

environment (Fig.28).

6. Physical inactivity is a violation of bodily functions (musculoskeletal, circulatory, respiratory) with limited physical activity, reducing the resistance forces muscles. Prevention of inactivity provides industrial gymnastics etc.

7. Overvoltage analyzers - situation when the intensity of exposure to the analyzer exceeds the permissible norm.

While actions in a job the working conditions have great value. ***Working conditions*** *is* a set of environment factors that influence the health and human performance.

According to the sanitary classification there are distinguished the following ***kinds of working conditions:***

1. *Optimum conditions* - adverse effects on health is excluded and the conditions for constant high operability are created.

2. *Admissible conditions* - impact of production factors does not exceed the established norms and possible functional changes are temporary and can easily be restored after the rest.

3. *Harmful conditions* - because of infringement of norms probably influence of factors of production, changing the functional state and leading to malfunction and health.

Working conditions consist of several *production factors (a*t certain level of these factors they can bring to ill health).

From the point of view of negative influence of production factors on health of the person allocate:

1. *Dangerous production factors* - the factors, which influence under certain conditions can lead to a trauma or sharp deterioration of health.

2. *Harmful production factors* - the factors, which influence in certain conditions can lead to illness or permanent reduction in capacity.

So, psychophysiology is the branch of psychology that is concerned with the physiological bases of psychological processes.[18]

3.2. Life Safety while working on a computer

Though education staff are not usually working at a computer all day, the introduction of planning, preparation and assessment time and the electronic marking of examinations have resulted in increased use of computers.

There are health problems associated with working with computers, which include repetitive strain injury, eye strain, back pain and stress (Fig. 29).

Figure 29. Localization of symptoms

Risk assessment

The regulations require employers to carry out a risk assessment of users' workstations, which should consider the entire workstation, including equipment and furniture, as well as the work environment, e.g. lighting, temperature and leg room. The tasks that are being performed at the work station should be considered as should any special needs of individual staff.

Display screen equipment (DSE) risk assessments should also consider those factors that may contribute to repetitive strain injuries such as:

- sitting in the same position for a long period
- awkward positioning of the wrist and hand in relation to the keyboard
- high workload for a prolonged period of time

- excessive use of the mouse.

Checklist for workstations

There is the minimum list of requirements providing the safest using the computer

The display screen

This should:

- display well-defined characters of adequate size and spacing
- have a stable image
- have easily adjustable brightness and contrast
- tilt and swivel easily to suit the user
- be free from glare and reflections
- use a separate base for the screen, or an adjustable table.

The keyboard

This should:

- be tiltable and separate from the screen to allow the user to adopt a comfortable working position
- have a space in front to provide support for the hands or arms of the user
- have a matt surface
- have clearly legible symbols on the keys.

The work surface

The work surface should:

– provide adequate space for the user

– have a low reflective surface

– be of adequate size to allow the screen, keyboard, etc to be flexibly arranged

– have a stable, adjustment document holder, which should be at the same level as the screen and at the same viewing distance.

The work chair

This should have a seat that is adjustable in height, with a seat back adjustable in height and tilt. A footrest should be available.

The workstation/environment

The workstation must do the following:

– provide sufficient space for the user or the operator to alter position comfortably

– lighting must be adequate with suitable contrast between the screen and background

– glare and reflections on the screen should be avoided

– windows should be fitted with adjustable coverings to alter the daylight level.

When a workstation is shared by more than one person, it should be assessed in respect of each person.

Schools and colleges should consult their safety reps on all matters concerning work with computers.

Training in using computers

Employers are obliged to provide information and training on the health and safety aspects of working with computers. This should cover:

– the importance of good posture, changing position and good keyboard technique

– how to avoid glare or bright reflections in the screen

– cleaning and adjusting the screen

– the importance of frequent short breaks

– using a mouse

– health risks

– who to report symptoms to or to contact for help

– information about the right to eyesight tests.

Laptop computers

The work of laptop users should be properly assessed. As some laptops can be heavy, the assessment ought to include the risk of manual handling (ie lifting and carrying).

Laptops should be used in proper workstations and not on one's lap, especially if large amounts of data need to be inputted. As prolonged use is likely to cause ergonomic problems, it is even more important for users to take regular breaks, position themselves correctly, flex their arms, etc.

Councils for the correct pose while using a computer.

Incorrect using of a computer (Fig. 30) can lead to serious health problems.

Figure 30. Incorrect position on a computer

Prolonged use of a computer keyboard and/or mouse can lead to frequent muscle aches and nerve pain unless a few guidelines are followed. You can work more comfortably and safely if you incorporate the following ergonomic tips into your work style:

1. Posture and Positioning:

1. Maintain good posture when working at the keyboard. Utilize a chair with back support.

2. Keep your feet supported on the floor or on a footrest when you work to reduce pressure on your lower back.

3. Avoid twisting or bending your trunk or neck. Frequently used items should be positioned directly in front of you and angled upward on a copyholder when working.

4. Keep your shoulders relaxed with your elbows close to your sides.

5. Avoid resting your elbows on the hard surface or edge of your table. Pads can be used to protect your elbows if necessary.

6. Elbows should be positioned at 100 to 110 degrees when working in order to keep a relaxed position at the keyboard. This could require a slight negative tilt (front of keyboard higher than back) when working in upright positions. If reclined in your chair, the keyboard could be at a positive angle to maintain this relaxed position.

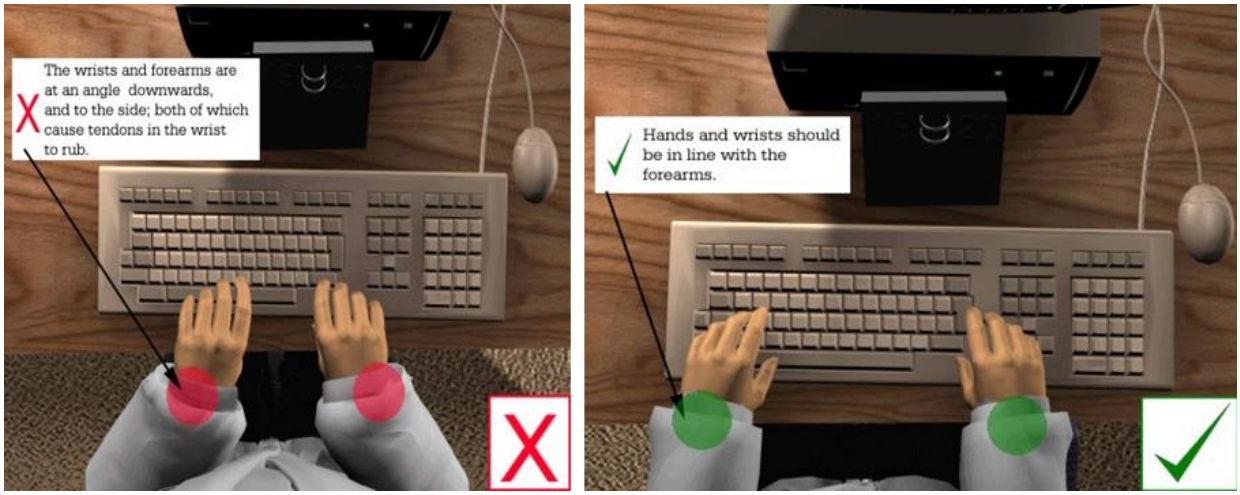


Figure 31. Hands position

7. Your wrists should be in a neutral or straight position when keying or using a pointing device or calculator (Fig.31). Wrist rests can assist you in maintaining a neutral position when used properly during pauses. Float your arms above the keyboard and wrist rest when keying. Avoid planting your wrists on the table or wrist rest. This can result in bending the wrists either up and down or side to side.

8. Take breaks. These breaks can be brief and should include stretches for optimal results. If possible, take a one or two-minute break every 15 to 20 minutes, or a five-minute break every hour. Every few hours, get up, move around, and do an alternative activity.

O, try to safe he ideal position by using computer (Fig.32):

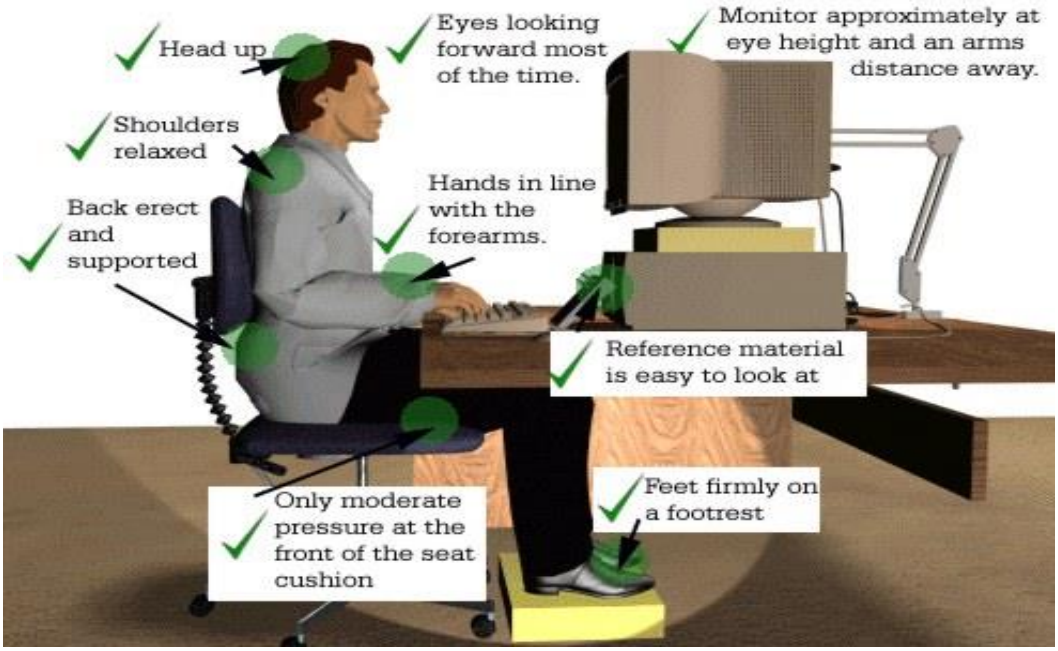


Figure 32. Ideal position on a computer

2. Work Technique

1. Reduce keystrokes with the use of macros or software programs allowing "sticky keys." Use scroll locks and keystroke combinations to reduce pointing-device movements.

2. Alternate tasks to make changes in your working position to avoid making the same movements for prolonged periods of time.

3. Keep your fingers and knuckles relaxed when working at the keyboard.

4. Never hold a pen or pencil in your hand when keying.

5. Avoid hitting the keyboard with excessive force. Studies have shown that the average user hits the keyboard with four times the required force when keying.

6. Avoid holding your pointing device tightly. Your hand should be relaxed.

7. Rest your eyes by refocusing on distant objects intermittently when working.

3. Work Environment

1. Avoid excessive reaching. Your keyboard, pointing device, files and telephone should be within easy reach.

2. Use a keyboard tray to properly position your keyboard and pointing device.

3. Use a copyholder positioned in line with your monitor and keyboard.

4. When writing at the computer, avoid excessive reaching over the keyboard or work materials. A sturdy in-line copyholder can double as a writing surface if appropriately positioned.

5. Position the monitor so that the viewed part of the screen allows you to keep your neck in a neutral or straight position. The monitor should be centered directly in front of you. The top of the computer screen should be slightly below the top of your head, so that you are looking at it with a slightly downward gaze.

6. Position your monitor to eliminate excessive glare or reflections from windows and lighting.

7. Customize your computer by using your software. The screen font, contrast, pointer size, speed, and color can all be adjusted to maximize your comfort and efficiency.

4. Lifestyle

1. Aerobic exercise will help to sustain strength, improve cardiovascular conditioning, and counteract the strain of sedentary computer use.

2. Routine use of non-prescribed medications or a wrist brace is not recommended. If you begin to develop symptoms, notify your supervisor. Slight changes made early can avoid future complications.

Also it’s possible to use the following exercises for the office:

- One of the biggest injury risk factors is static posture.
- Trying to spend at least 5 minutes every hour away from your computer.
- Remember to only stretch to the point of mild tension.
- Try to incorporate the stretches into your daily routine.
- This slide provides some illustrations of simple active stretches to perform at the office. [19]

CONCLUSION

Today for understanding and management of highly intellectual processes it is necessary to have a good knowledge in the ICT sphere. That's why the problems of market advantage and leadership of the enterprises all more depend on the solution of such problems as knowledge and abilities of employees in the field of ICT, their education and professional qualification, high-quality knowledge of the computer equipment, software products, etc. Improvement of quality of personnel's work, economical use of available resources is the purpose of each enterprise. Introduction of the latest information and communication technologies and the automated systems increases the production's efficiency. It happens essentially due to equipment of production by the new machinery and its competent, correct exploitation by the staff of the enterprise.

In this final qualification work on the theme "The development of training program for users of corporate information systems" is developed the program of training of the personnel of the automated information system "Fan" being a part of system of the electronic government and serving for automation of activity of such bodies as Committee for Coordination Science and Technology Development, Academy of Sciences of the Republic of Uzbekistan and the Highest Validation Committee of the Republic of Uzbekistan.

As a result of preparation of FQW the following tasks were realized:

1. Bases of corporate information systems and a problem are studied;
2. Analysis of problems arising during the implementation of CIS is carried out;
3. Specific features of the implemented CIS are considered;
4. The formulation of the problem is determined;
5. Examine existing teaching methods ;
6. A syllabus for each type of system users is developed;
7. An electronic book that facilitates the process of practical studying of CIS by its users is developed;

8. A user's guide is created;
9. An agreement between the owners and users of information is prepared;
10. Life safety is considered.

Thanks to the developed program users of CIS "Fan" will have an opportunity of acquisition of versatile knowledge for the professional activity also, will be able to develop skills of expert using of the corporate information system for reduction of their personal labor expenses.

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