**COMMUNICATION AND INFORMATION AGENCY OF UZBEKISTAN**

**TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES**

For the Chief of
Defense Department
_____
_____ 2011 y.

**Bachelor's final qualifying work**

Titled: «**Developing the electronical methodical complex of discipline "Valeology" with the possibility of realization the practical part through mobile communication**»

Graduate _____ Ubaydullaev T.R.
(signature) (name)

Adviser _____ Kurjner V.S.
(signature) (name)

Reviewer _____
(signature) (name)

Consultant _____Abdullaeva S. M.
(signature) (name)

Tashkent 2011

**COMMUNICATION AND INFORMATION AGENCY OF UZBEKISTAN**

**TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES**

Faculty IT department _____ Pedagogics of technical education _____

Direction (specialization) 5140900_____

Professional education (informatics and information technologies)_____

APPROVED

Chief of chair _____

"___" _____2011 y.

**ASSIGNMENT**

for the Bachelor's final qualifying work

_____ Ubaydullaev Tahir Rustamovich_____

(surname, name, patronymic)

1. Theme of work: **Developing the electronical methodical complex of discipline "Valeology" with the possibility of realization the practical part through mobile communication**_____

2. Approved by the order of the university from "__" _____ 2011 y. № ____

3. Date for final work _____

4. Baseline data for work Technical books_____

_____

5. The contents of a settlement and explanatory notes (the list of questions liable for working up) introduction, basic chapter, pedagogics chapter, safety of life chapter, conclusion _____

6. The list of graphic material tables, figures _____

7. Date of delivery of the task _____

Adviser _____

(signature)

Assignment accept _____

(signature)

8. Consultants on separate sections of final qualifying work

| Section | Name of consultant | Signature, date | |
|---|---|---|---|
| | | Assignment given | Assignment taken |
| Chapter 1 | Kurjner V S | | |
| Chapter 2 | Kurjner V S | | |
| Chapter 3 | Abdullayeva S. M. | | |

9. The schedule of performance of work

| № | The name of work's section | Date of performance | Signature |
|---|---|---|---|
| 1. | Collection and processing of raw materials to performance the work | | |
| 2. | Compiling content | | |
| 3. | Writing the final qualifying work | | |
| 4. | Registration the final qualifying work | | |
| 5. | Preparation of the report - presentation | | |
| 6. | Provisional protection | | |
| 7. | Protection | | |

Graduating student _____ «___» _____ 2011 y.

(signature)

Adviser _____ «___» _____ 2011 y.

(signature)

В данной выпускной квалификационной работе рассматривается разработка электронного учебно-методического комплекса по дисциплине «Валеология» с возможностью реализации практической части посредством мобильной связи.

In this final qualification work the development of an electronic educational - methodical complex on discipline "Valeology" with the possibility to implement practical part through mobile communication.

Мазкур битирув малакавий ишда "Валеология" фани буйича электрон укув- методик комплекс ишланмаси ва унинг амалий кисмини уяли алока воситалари оркали амалга ошириш йуллари курилади.

**CONTENT**

# INTRODUCTION

In the recent trend of rapid development of educational technologies, due to intensive introduction into the learning process of computer and telecommunications networks, today's multimedia tools and automation equipment. Therefore, in the information society, priority is a high degree of education of its members. New computer technology for information exchange established the feasibility of mass education, broke news of the border, increased speed of information exchange and increased its volume. Use of information technology - the only possible way of learning, the appropriate international standards.
In addition, the development of information technology causes the formation of a new educational system, which provides unique educational services, and at the same high quality.

According to the Decree of the President of the Republic of Uzbekistan Islam Karimov "On further development of computerization and introduction of information and communication technologies, and in accordance with the National Programme for Training of the Republic of Uzbekistan, to establish a national system of information and its mass introduction into all spheres of public life, creating favorable conditions for entry into the global information community.

It has now become very affordable as mobile communication and mobile Internet. Location of Internet access possible from virtually any point of both Uzbekistan and beyond. By means of mobile phones can use Internet resources as a connection to gprs, wap, and through high-speed wireless Wi Fi 2G, 3G and 4G, at a rate of 37 frames / sec to 10 MB / sec.

Mobile phone is an integral part of modern man, which allows to identify a number of advantages: the ability to use anytime and anywhere, the ability to use off-line mode, the subsequent distribution of applications to other mobile phones, support for all audio, video and Flash formats.

The **subject of research** is an electronic educational and methodological complex (EEMC) and the possibility of practical implementation of mobile communications.

**The aim** is to develop a mobile software product and its use in the educational process.

**This objective involves the following tasks:**

- study the electronic structure of educational and methodical complex;
- development of a practical part of the electronic educational and methodical complex discipline “Valeology ";
- implementation of the practical part of the educational process by means of mobile communication.

**The novelty of this work** is that discussed and proposed a new innovative form of obtaining and consolidating knowledge in the discipline "Valeology.

**The topicality of the work**: used a systematic approach of introducing the elements of training in mobile communication, which takes into account not only the growth of information flow, but also tend to reduce the amount of hours allocated for the course. This current approach is open to innovative computer and information and communication technologies, preparing students in a friendly interface for independent living in the information society.

Publications by WRC: on the final qualification paper published an article: «Mobile Learning».

Graduation thesis consists of three interrelated chapters.

The first chapter examines the relevance of e-learning - methodological complex in the learning process. The need for an electronic educational - methodical complex in the educational process, provision of electronic educational - methodical and complex structure of the electronic educational - methodical complex on discipline "Valeology".

In the second chapter describes the stages of the development of electronic educational - methodical complex on discipline "Valeology" as well as sales of software via mobile phones. Examines the organization of educational process with the use of mobile learning technologies, as well as modern teaching technologies and methods of use of multimedia resources in education, particularly in the course "Valeology.

The third chapter describes: in any educational process, based on computer and telecommunication technologies, must include elements of knowledge and skills on safety; all participants in the learning process should be aware that the flight of "student - computer – teacher" is included as part of a broader system "man – machine". In accordance with the fundamentals of ergonomics, we should distinguish, for some indicators of person than car, and for some indicators of the machine than man.

# Chapter 1. ANALYSIS AND REVIEW ELECTRONIC EDUCATION METHODICAL COMPLEXES

## 1.1 Forms of electonic educational resources

Different sides of globalization of the world community (scientific, technological, economic, cultural and educational) had a very significant impact on the development of a variety of educational innovation using information and communication technologies such as distance learning and virtual universities. Recently, higher education institutions to improve the learning process actively create electronic educational-methodical complexes (EEMC). E-teaching and methodical complex (EEMC) is functionally complete set of learning and teaching materials for subject matter in electronic form. It may include electronic textbooks, manuals, reference notes, guidelines, training and modeling computer programs, computer workshops, test kits, etc. The testers E-teaching and methodical complex (EEMC) must ensure, in accordance with a program of discipline (Course): Self-organization of learning, including training and monitoring of student knowledge (self-control, current control knowledge) training by providing the trainee the necessary (basic) training materials, specially designed (methodologically and didactically worked) for the implementation of distance learning, methodological support of educational courses and disciplines, additional information support to distance education (additional training and background materials).

Minimum EEMC includes: business school (a semester) Plan of learning; program of discipline or training course (content, size, and how learning and teaching of the course), the schedule of training classes of all kinds; guidance on the discipline (course) and prepare for various types of training, monitoring knowledge; textbook on the discipline (training courses), methodically and didactically prepared for distance learning; didactic materials for the self, the current control knowledge, (collections of tasks, tests, tests for the self, etc.);Workshop on discipline or a practical guide (manual), if the practical training provided for workers training and thematic plans; benefits of distance learning (including self-learning training activities). The main characteristics and structure of teaching materials.

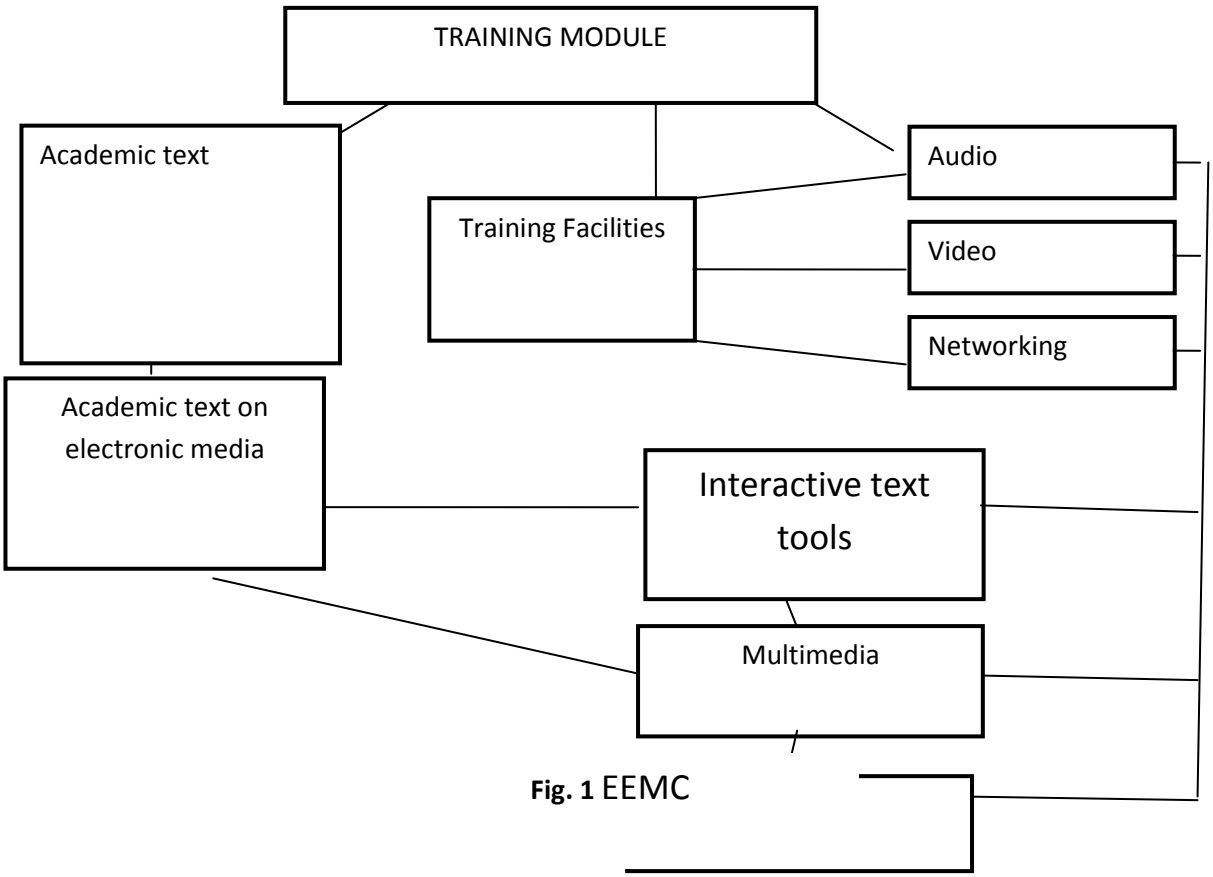



**Fig. 1** EEMC

Academic text on the content corresponds to part (chapter, section, etc.) the objective of the course and presents the necessary information that students must master.

Often the amount of information in the training module is less than the amount offered to students in traditional (lecture) form of teaching, if course material is presented in a strictly structured and generalized form, but without prejudice to the content. This is achieved through a special organization of educational material. Academic text ─ integral element of the training module ─ outlines the necessary information that students must master. The word "academic" here means not only "relevant to higher education," but also "meets a certain tradition," "repeatedly tested" and, hence, the "easiest way leads to the desired result."

Academic text (it can be both original and compilation) is organized so that the student mastered the information without the direct involvement of the teacher. Of course, this assumes a special didactic form of presenting and structuring of educational knowledge, which constitutes the content of AT.

In addition to print information text modules is their very productive maintenance and support

additional training aids: audio-and videotapes, as well as training programs and technology-based learning opportunities of computer networks (distributed learning, tutoring).

It is reasonable to printed and other means to improve the learning process through teaching and methodical complex complement each other, with the possibility of audio, video and computer training facilities "take" would assume those functions that are difficult to be realized in hard copy or can not be implemented on rigid media

AUDIO (Audio cassettes, audio computer files) may accompany the mind and act as a tool to support printed materials. At audio contains explanations main concerns of the course, the most important texts of lectures, or fragments thereof, etc.

Viewing copy (Videos, computer video files) may contain educational films (including animation), provides a visualization and / or maintenance of printed materials. This is especially true for the demonstration of laboratory experiments and reporting processes and phenomena of relevance to the study, but an empirical observation which is not available or not. The most promising is the creation and use of teaching materials on electronic media. First of all, it can be electronic versions of printed material. Despite the criticism, this path seems quite promising, especially since the electronic equivalent of printed materials can be structured according to didactic problems and provided information search system. Is more efficient multimedia learning tools that combine text, graphics, audio and video allow more complete presentation of the phenomena and processes.

Electronic CMD should be based on the work program of appropriate discipline. The number of items of electronic teaching materials and their volume should correspond to types of training activities and their complexity, provided the working program of discipline. The system offers the following elements:

• ELECTRONIC ABSTRACT;

• information resources;

• Appraiser and a quiz;

• Virtual Lab;

• ELECTRONIC WORKSHOPS;

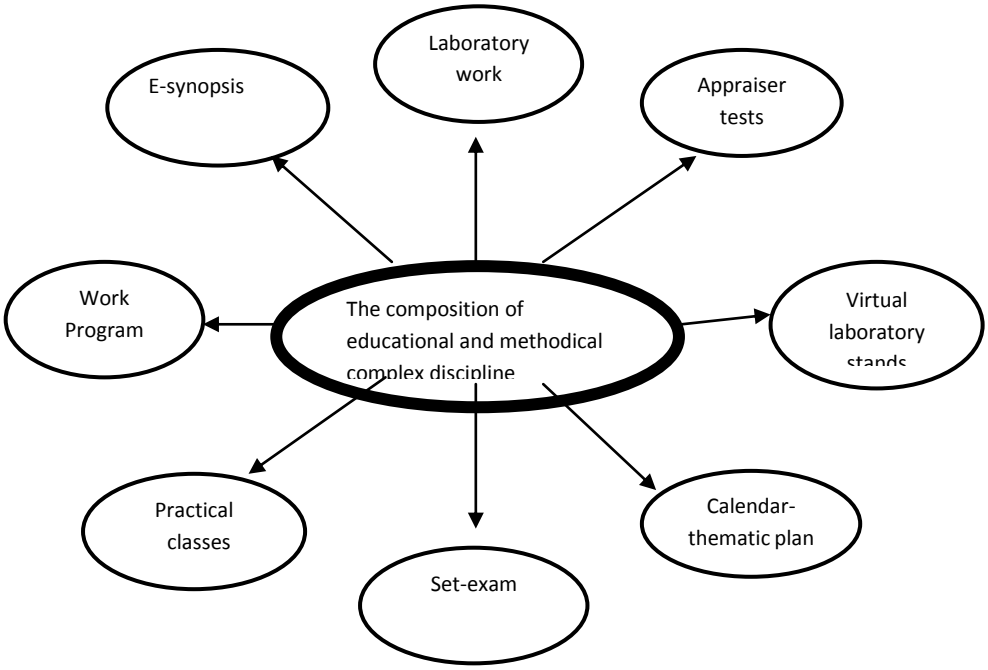



**Fig. 2**

## Electronic abstract

E-synopsis

In contrast, learning with traditional textbooks, training with quality e-book or electronic synopsis is nonlinear, adaptive and more efficient. A set of electronic abstracts, can not replace traditional forms of presentation and study of material, but specific organization of the material in electronic outline, its structuring and layering, allows the student to choose the path of learning. When you create an electronic note-taking system should adhere to the following principles:

- a high degree of structuring of educational material;
- multilevel presentation of educational material;
- reasonableness of hypertext links.

Information resources

Along with an electronic synopsis of the study of theoretical aspects of the course and in carrying out practical work the student may need additional materials. Such materials can be drawings, paintings, texts of programs, databases, ie Any information that can be organized as a file or group of files. In this case, on the one hand, the information can not be attributed to the electronic notes, as it is not structured and multi-layered presentation of theoretical material, on

the other hand, no restrictions on file type is not imposed. Thus, information resources are ancillary materials designed to perform various tasks and work on the curriculum Appraiser training and tests.

Appraiser training and system testing is one of the most fundamental and methodically worked the subsystems in the education system. Its implementation allowed: unify the level of knowledge, to make an objective knowledge control, reduce time spent on verification of knowledge and, consequently, reduce the period of control knowledge. Testing of the issues of mass testing of students, especially at the undergraduate, allows teaching staff to concentrate on the development of new pedagogical technologies of teaching. Appraiser testing students' knowledge, when the test results into the database system of education recorded score, automates the process of putting credits, access to labs and exams. Tutorials test knowledge is first of all to prepare the student for the appraiser testing, allows students to better assess their level of knowledge and determine what issues need further elaboration. Thus, instructional testing is intended solely for the organization of independent student work.

Virtual labs

The Virtual Laboratory is a unit of distance learning. In general, the virtual laboratory is a kind of information environment that enables you to experiment without having direct access to the object of study. In this case, experiments can be conducted both by using mathematical models, and using remote access to the object under study. Laboratory work should be seen as part of e-learning course, which also includes information pages of the electronic textbook, tests, practical work. Each virtual lab is a training complex that contains several components:

• brief description and analysis of the theoretical aspects of the studied object, phenomenon or process;

• description of instruments and equipment used for research, their characteristics and application procedure;

• Study of the studied object, phenomenon or process on the individual program, processing of results and reporting.

Electronic Workshop

The workshop, which is a distance learning module contains a set of tasks that must be done student. Against a task selected from a database and assigned to a specific student. In contrast to the virtual lab, a task that the student is presented in the workshop, do not require immediate execution. System is determined by the period during which the job should be handed

over. The result of the assignment should be a file sent by a student in the database. Checking the job done teacher, who puts down marks for the assignment.

PROSPECTS OF ELECTRONIC TEACHING COMPLEX (EEMC)

At this time, there is increasing complexity of programs running on your computer, resulting in many of the functions "enrich" and multi-media passed on to the machine user. This allows you to create very rich pictorial elements and structurally complex multi-media information channels.

We should not forget that recently the Internet has become the object of interest in all sorts of firms that offer educational services. These firms are in pursuit of profit often disseminate information under the brand name electronic textbooks are not meeting the sometimes didactic basic requirements. Hence the need for expert evaluation of the proposed benefits in terms of their possible use in the learning process.

**COMPONENT OF THE TEACHING SECTOR**

| **№** | NAME | TABLE OF CONTENTS | STUDY OBJECTIVE PROGRAMS | AGENT EXECUTION | METHOD OF STUDENT |
|---|---|---|---|---|---|
| **1** | Target setting | Objectives of the course, location of the course, the value of acquired knowledge and skills | Create motivational set | HTML | Perusal |
| **2** | How to deal with the course | Methodological and practical guidance for students | Ensure the ability to work effectively | HTML | Perusal |
| **3** | Synopsis of topics | Key provisions of the concepts, structure of content | Give a schematic representation of the contents, highlight the main provisions | Macromedia Flash | The study of abstract-tion |

| | | | | | |
|---|---|---|---|---|---|
| **4** | Reading | Excerpts from textbooks and supplementary literature | Writing a full-scale representation of the theme | HTML | Perusal |
| **5** | Material for the curiosity-state | Excerpt from the literature, the Internet - material | Encourage interest in-depth study of the subject | HTML, references to the Internet - resources | Perusal |
| **6** | Exercises | Complex interactive exercises | Consolidate the theoretical material | Macromedia Flash | Active performance |
| **7** | Tasks | Step by step analysis of typical problems, challenges for the independent solutions | Provide activity-related component of the learning | Macromedia Flash | Active performance |
| **8** | Issues of self- | Questions on understanding of the topic | Enable self- | HTML | Active performance |
| **9** | Talk (discussion) | Questions on understanding of the topic, the problematic issues, counseling | Provide a link with the remote instructor communication in group | Learning Space | Actively participate in the discussion |
| **10** | Computer Workshop | Job for execution on a computer | Provide activity-related component of learning, develop skills | HTML | Performing tasks on the computer with the support of teachers on site |

| | | | | | |
|---|---|---|---|---|---|
| **11** | Intermediate and final control | Tests on the job, the job at the rate of | Check the knowledge and skills | The instrument Learning Space, Macromedia Flash, HTML | Test execution, execution and dispatch jobs |
| **12** | Questioning | Range of issues aimed at identifying the problems with CMD | Provide feedback to students | Learning Space | Answers to questions |

E-teaching and methodical complex (EEMC)

Methodological aspect: the publication containing a set of textbooks designed for a certain level of training and includes a textbook, workbook, workbooks, reference books, etc.

Minimum:

1. curriculum subjects;

2. theoretical materials (textbook or a tutorial and / or a reader and / or lectures);

3. laboratory praktikum1 (automated or virtual);

4. methodological guidelines on exchange design;

5. measuring and control materials;

6. Additional information and reference materials;

7. An interactive chart of the discipline, which reflects the recommended order of the discipline and passing the checkpoint;

8. guidelines, prepared by traditional technology, which reflect the technology of interaction with the student teacher in the process of applying EEMC.

Technical implementation: publication issued on hypertext technology, using multimedia components, combined single software environment and navigation, as well as containing additional modules (executable programs for computing procedures, information and referral systems, etc.).

E-teaching and methodical complex could be developed if necessary reference materials and dictionaries, academic literature, readers, links to databases, websites, electronic dictionaries and network resources.

EEMC author must provide a list of required specialized audiences (computer classes), classrooms and laboratories with an indication used in the educational process on the basic

discipline of teaching and laboratory equipment, technical training and software for the successful completion of an academic discipline.

EEMC author must specify a list of specialized websites

**Composition and description EEMC**

Curriculum subjects

Work Programme is based on educational standards. It determines the content, scope and level of learning material academic discipline, composition, structure and level of formation of methods of cognition and activities, and also sets requirements for the level of professional development of the student.

The work program includes methodological guidance for students on rational technology Learning at a given level, as well as methods of forming methods of knowledge and activity.

An essential element of the work program are the benchmarks and targets for the solution of problems on the basis of the material studied in the discipline.

**Structure of the Work Programme:**

Aims and objectives of the discipline

Weekly timetable for completing the course

The content of the theoretical section of disciplines

Contents of the practical section of disciplines

Subjects of seminars, workshops

Control works

Options for control tasks and guidance on their implementation

Course project (coursework)

Job term project (coursework)

Teaching of discipline

Literature mandatory

More Literature

Training manuals

Web-resources

The theoretical material (textbook or a tutorial and / or a reader and / or lectures). Designed to present selected according to c requirements of the work program and a structured methodology for dose, modules and components of educational material discipline, providing an

instant self-control and monitoring, and managing students' cognitive activity, using the results of monitoring and the ability of other elements of e-teaching and methodical complex. In the development of electronic and printed teaching materials for distance learning should be guided by the following:

Tutorials on the completeness of the content must be designed in such a way as to minimize the student's appeal for additional training information. In constructing the structure of educational material in the manual is advisable to use the modular principle. Should be given detailed instructions (recommendations) on the study material and organization of independent work. Indispensable elements in the textbook should be control tasks, a glossary, questions for self-control, training assignments. Rational structure of the manual for the discipline, the invariant content includes the following topics:

Introduction to the discipline (history, subject, topicality, place and relationship with other disciplines of the program in the specialty).

The curriculum for the discipline (course).

The purpose and objectives of the discipline.

Methodological guidelines for self-study course.

Table of Contents.

The main content, structured in sections (modules).

Tests, questions, problems with answers for the training (by section).

Final test.

Practical tasks for independent work.

Subjects for small research projects.

Dictionary of terms.

List of acronyms and abbreviations.

Conclusion.

References (basic, supplemental).

**Electronic textbook**

Methodological aspect: textbook, containing a systematic exposition of the discipline, corresponding to its curriculum and has been approved as of this type of publication. Minimum: theoretical material, measurement and control materials, a glossary of terms, background information, a list of basic and supplementary literature. Technical implementation: publication issued on hypertext technology, using multimedia components, combined single software

environment, navigation system, and containing, if necessary, additional software modules (executable programs for computing procedures, information and referral systems, etc.).

Electronic textbook

Methodological aspect: textbook, supplementing or partially (fully) replacing the textbook has been approved as of this type of publication and contains a systematic exposition of the discipline (a particular section), corresponding to the curriculum subjects. Minimum: theoretical material, measurement and control materials, a glossary of terms, background information, a list of basic and supplementary literature. Technical implementation: publication issued on hypertext technology, using multimedia components, combined single software environment, navigation system, and containing, if necessary, additional software modules (executable programs for computing procedures, information and referral systems, etc.)

Electronic lectures

Methodological aspect: textbook, which is a set of lectures covering the content of the discipline. Minimum: plan of lectures, theoretical material, bank control and measurement materials, divided by topic.Technical implementation: publication issued on hypertext technology, using multimedia components and / or using visual graphical representations (slides), united by the software environment and navigation.

E-reader

Methodological aspect: textbook, containing literary, artistic, historical and other works or excerpts of them constituting the object of study in an academic discipline. Minimum: theoretical material, measurement and control materials, information and reference materials. Technical implementation: publication issued on hypertext technology, using multimedia technology, combined unified software environment and navigation.

Electronic simulator.

Methodological aspect: textbook, intended for the formation and consolidation of skills acquired through the development of theoretical material. Technical implementation: a complex simulation programs and methodological tools developed by using multimedia components, united by a common software environment and for the operation of an electronic simulator as a standalone ESM or in combination with other ESM.

Electronic Workshop

Methodological aspect: textbook, containing practical assignments and exercises to facilitate the assimilation of theoretical material covered.

For this type include: a virtual laboratory practice (VLP), an automated laboratory practice (ALP) (including remote access).

Minimum: brief theoretical information, software package, hardware and software systems (APC) (laboratory setting, in a special way associated with the PC) software, which forms the structure of reporting for laboratory work, measuring and control materials, guidelines, prepared by the traditional technology, which reflect the technology of interaction with the student teacher in the implementation of a laboratory practical.

Technical implementation:

Virtual laboratory practice - a set of software tools that ensure implementation of laboratory work carried out by using complex mathematical models that are generated and investigated with the help of simulation programs.

Automated laboratory practice - a set of software and hardware, providing performance of laboratory works on the basis of AIC.

Automated laboratory practice with remote access (ALP AP) - complex software and hardware, providing performance of laboratory works on the basis of AIC. However, access to agricultural done via the Intranet / Internet, as a monopoly, and in multiplayer mode.

Methodological guidelines on exchange design

Methodological aspect - an independent academic work of students performed during the course (semester), under the guidance of a teacher. Includes a range of research and theoretical work on topics. Minimum: an indication of the purpose and objectives of the course work, a typical structure and content requirements of sections of course work, the order of execution of work (choice of topic, literature and factual materials, design work), the order of protection, the Department recommended a list of topics for the course work. Technical implementation: publication issued on hypertext technology, using multimedia components and / or using visual graphical representations (slides), united by the software environment and navigation.

Gauging materials;

Methodological approach: the set of tests, intended for input, intermediate and final self-knowledge. Technical implementation: a complex file structures designed to operate specialized software (e-test system) intended for processing and evaluation of test results.

Additional background information

Electronic reference materials. Methodological aspect: textbook, containing a summary of scientific and applied nature. In technical terms, a publication issued by hypertext technology, using multimedia components, combined single software environment, and a navigation system that includes tools to quickly find information.

Interactive schedule of the discipline, which reflects the recommended order of the discipline and passing the checkpoint;

Methodological aspect: Recommended Methodists and tutors individual plan of student work (timetable), in which all learning activities are superimposed on the semester calendar. The schedule specifies the week studying the course and the control measures that await the student in a particular week, and target dates for delivery (sending) of written work and answers to school assignments.

Minimum: the current control (TC), landmark control (SC), e-lecture (EL), video conferencing (VC), paper (P), discussion (D) case study (CS) Exam (E).
In technical terms, electronic communications in the form of epistolary communication, implemented by means of information and communication technologies in the form of forums, chat rooms or via e-mail.

Methodical recommendations for the student to study an academic subject, organization of self-control monitoring.

Methodical recommendations are developed based on the general principles of the student with an electronic teaching materials for the study subjects:
Learner begins to study subjects with recommendations on self-study course;
In parallel with the study of learning material the student gets acquainted with the basic terms and concepts that he needs to know when studying this section;
After that, the student must perform practical exercises included in the program course; At this stage the learner is expected to help their own tests to check their knowledge; At certain stages of student passes control testing on the topics (sections); After studying all the material subjects the student must pass control testing throughout the material. In technical terms, a publication issued by hypertext technology, using multimedia components, combined single software environment, and a navigation system that includes tools to quickly find information.

### 1.2. Relevance of e-learning - methodological complex in the educational process

Modern trends in education call for new educational technologies and learning tools. An important place is occupied by information technology. New electronic books, developed automated training systems, virtual universities are organized to discuss distance learning.

Using Internet technology opens up new opportunities for lifelong learning professionals for the second education makes learning more accessible. The main task of the educational process is to provide trainee with the possibility to obtain high-quality professional knowledge in

his chosen field. In the process of distance learning student independently develops online training and methodological material through testing. Distance learning is interactive through specially prepared programs, electronic textbooks, electronic teaching methods, etc. Active implementation of modern information and communication technologies in educational process is an important factor in creating the educational system that meets the requirements of information society and the process of reforming the traditional educational system in light of the demands of modern industrial society. The use of communication technologies in education has led to the emergence of a new generation of educational information technologies that have improved the quality of education.

Information and communication technologies have a significant influence on the learning process, changing the pattern of knowledge and teaching methods. The introduction of information technology not only affects the education system and educational technology, but also allows you to enter a process of formation of special equipment, software and hardware. It also involves the creation of new training facilities and storage of knowledge, which include electronic training and mentoring systems, electronic books, digital libraries, global and local educational networks, information retrieval systems, etc.

In our view, the most promising application of modern information and communication technologies in educational process is the use of electronic teaching methods, the use of telecommunications, etc. From this perspective, it is expedient to analyze the approaches to creating and using electronic educational resources and the development of methodological principles for the development of electronic educational-methodical complex (EEMC) for general scientific disciplines [4]. Research and experience show that EEMC discipline should contain the following elements: – Electronic books, which include theoretical material, a glossary, as well as subjects of laboratory and practical work;

– Plans to lecture and practical exercises;

– Virtual laboratory complexes;

– Abstracts of presentations of lectures;

– Tasks for laboratory work;

– School assignments for independent work and requirements to them;

– Questions and tasks for the final certification;

– Descriptions of information resources and technologies required to complete school assignments;

– Guidelines for use of the complex;

– Electronic test bank;

– Links to Internet resources and additional training materials for in-depth

study of discipline (textbooks, manuals, magazines, etc.).

EEMC freely distributed on the local Intra-university network and the Internet. EEMC allows a higher methodological, theoretical, technological and methodological level to organize and implement training in terms of integrity of the educational process and the organic incorporation of innovative learning technologies in the professional formation of engineers.

The main advantages of e-learning courses compared to the block are:

– The inclusion of multimedia pieces and animation;

– Easy of replicate;

– Easy to update the material or its adaptation to the needs of individual categories of users;

– Easy hypertext navigation.

Practice shows that the real embodiment of modern information technologies in educational process is a system of developing learning tools, built on a modular form of training. The content of education in the technology is represented in the complete self-information blocks. EEMC in this context that ensures the continuity and completeness of the instructional cycle of the learning process by providing a theoretical material, contributing to the organization of training and educational activities to control the level of knowledge, information and research activities, mathematical modeling and simulation with computer visualization, and service functions. The textbook should have some excess of theoretical material, as it will build a variant trajectory study of sections of the course, providing some freedom of choice subject to the requirements of educational programs. Electronic textbook focuses on the maximum level of perception and awareness of educational information, activating all aspects of training and learning activities and learning. It provides systematic data on relevant scientific and practical knowledge, providing a creative and active mastery of students' knowledge, skills and abilities in this area. This EEMC must be of high level of performance and visual quality, completeness, quality methodological tools, technical implementation, clarity, logic and consistency of presentation, reliability and ease of access to information, the organization quickly find and work with interesting material. The technology to develop an electronic educational-methodical complex as an integrated component of the educational environment based on the following key principles:

1. Principle of modularity: EEMC made in formats that allow you to compose logical, meaningful units in electronic systems, expanded and updated to include new sections and

topics, as well as create digital libraries in specific subject areas or personal electronic library of the student, teacher or researcher.

2. The principle of free access to educational materials: realized through the use of the navigation system and «pop-up» in the structure of logical- semantic system of hypertext links throughout the tutorial and a separate module.

3. The principle of clarity: each module of the electronic textbook consists of a collection of frames with a minimum of text and visualization to facilitate understanding and remembering new concepts and methods, which involves the use of a rhythmic combination of various types of information from a position of compliance with the type of educational material, and especially its perception.

4. The principle of regulation: the student self-managed change in personnel, has an opportunity to bring to the screen any number of examples (the concept of «example» has a broad meaning: it is, and examples that illustrate the concepts under study and approval, and specific tasks): the number of tasks required to solve a certain level of complexity to ask them themselvesor a teacher, check yourself (answers to test questions or tests, deciding quiz). Electronic manual allows adaptation to specific user needs in the learning process, allowing you to vary the depth and complexity of the material under study and its applied focus, depending on the direction of specialization and training of the trainee, in relation to the needs of the user to generate an additional illustrative material, to provide interpretations of the studied concepts and derive a solution [10].

5. The principle of software and technology support: at any time of the trainee gets computer support, releasing him from the routine work and concentrate on the substance being studied in the present material, to consider a greater number of examples and solve more problems. And the software that performs these functions, focus not only on the transformation and a variety of calculations and graphical representations, but also check the results at any stage of working with information, not just at the final answer. Using EEMC application it is possible to organize the whole process of studying general scientific disciplines focusing on the implementation of the competency approach and the active involvement of educational opportunities for distance learning technologies. scientific disciplines focusing on the implementation of the competency approach and the active involvement of educational opportunities for distance learning technologies.

## 1.3. Structure of the electronic educational methodical complex on discipline "Valeology"

Control development organization EEMC assigned to the department a developer EEMC, scientific-methodical council of the Open Education and the Faculty of Open Education.

Stages of development of electronic educational - methodical complex discipline Valeology and software products through mobile phones.

Preparation of raw materials - the first stage of the technology of the electronic version of the training complex. At this stage the most important task - to take into account the specific requirements that apply to the training of remote education technology. The starting point in the preparation of raw materials is the regulation of their volume. There are two basic approaches.

The first approach assumes that an electronic training resource (ESD) is a supplement to the basic printing textbooks and training manuals. In this case, it is considered advisable that such material does not exceed five conventional accounting and publishing lists of each discipline within one year of training.

The second approach assumes that the electronic version of the training material is created as an independent comprehensive training facility. In this case, the resulting electronic educational and methodological complex (EEMC) must include a complete set of teaching materials: from the syllabus to the issues that will be submitted to a credit or examination. The volume of material in this case may exceed the volume of the printed analog due to the introduction of tests for self-explaining examples to parse the solution of typical problems, the availability of the necessary regulatory and reference databases, etc. The next important issue to be addressed is the organization of work of the authors. Preferably, if on the creation of educational materials works by one author. However, in real terms, given the large load of teachers in the preparation of starting materials for EEMC usually attended by several authors. In this case, requires a general editing. The editor should achieve not only the strict compliance of the deliverables of the working program, but also to provide a uniform format for their submission, to correlate the volumes of individual subjects in order to exclude a repetition of material or different interpretations of the same provisions. Such a task force only by an experienced teacher.

Shall be held a certain structure EEMC. The main requirement for it - modularity. Need for a clear structuring material (more rigid than a traditional textbook) is dictated by at least two reasons: organization - the breakdown of educational material on the blocks not only facilitates students to study in the absence of the teacher, but also allows you to regulate the procedure for

interaction between students and teachers; functional - implementation of hypertext navigation in the development EEMC should involve the isolation of semantic fragments in order.

If ESD is used as a supplement to the traditional printed textbooks (textbook), then when creating the structure of the training program should be maintained among them. For example, a student should have no difficulty associated with the displacement of the numbering order in EUR with respect to the textbook. "Reference" that is suitable for any discipline EEMC structure does not exist, but the set of its possible functional components can be represented as follows:

- Introduction;
- units of educational material;
- required additional material and normative reference base;
- jobs for self-monitoring and control;
- Conclusion.

Separate functional components, such as blocks of testing knowledge, it is advisable to issue as separate software modules. Examples of recommended teaching material structure is shown in the figure.

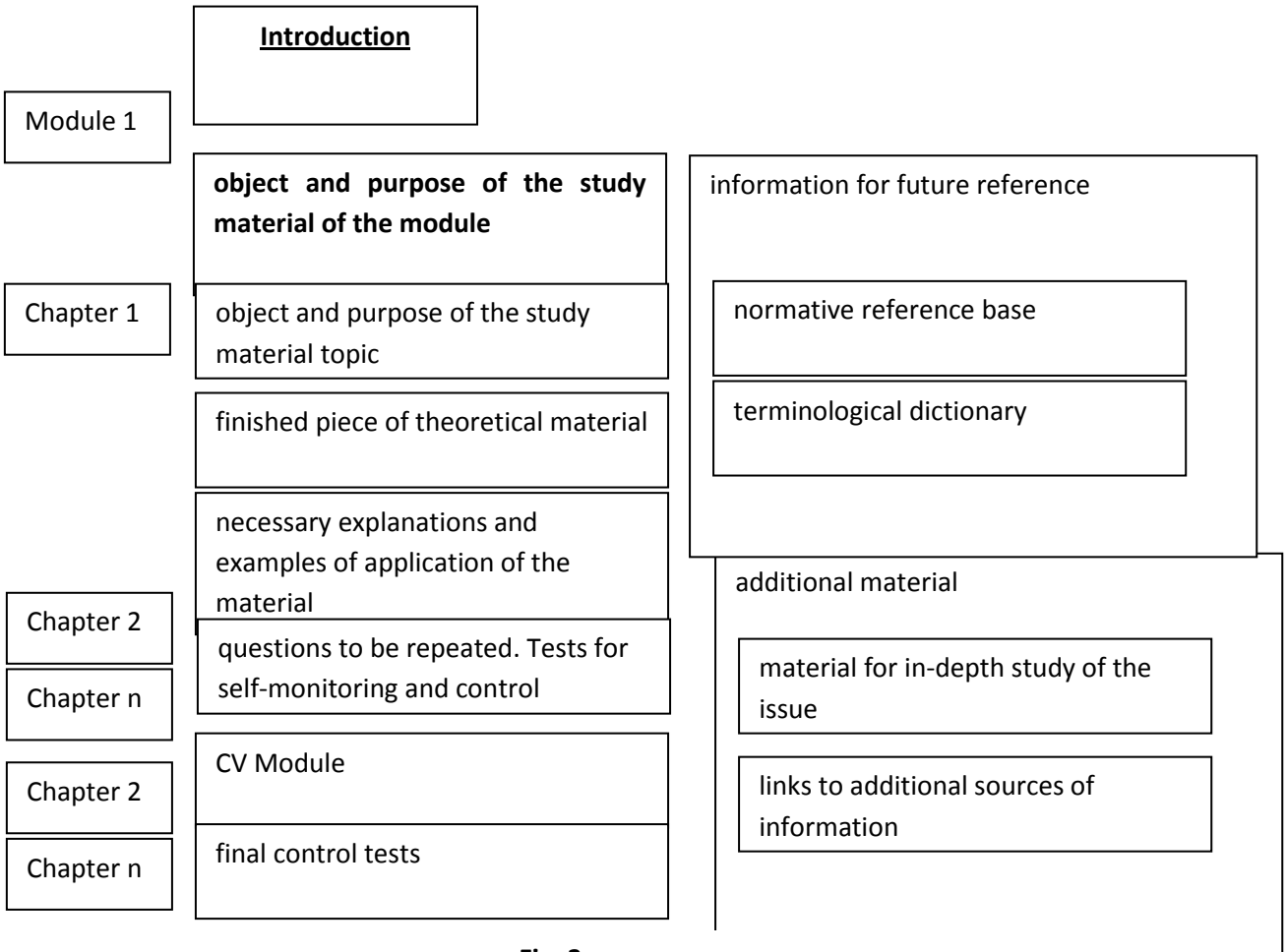



**Fig. 3**

Examples of recommended teaching material structure

### 1.4 Advantages of using e-EMC.

Introduction to the discipline as a whole should briefly describe the object, aims and objectives of the discipline, its place in the educational process and place EEMC included educational materials in the discipline.

Introduction to modules and themes and their summaries "include" mechanisms of perception and memory. Thus, the enumeration in the introduction to the subject of its main theses from the viewpoint of psychology is characterized as a unit. With regard to the recurrence of key moments in the introduction, the material of the topic and the conclusion, it is known that the information submitted several times, is more likely to remember (repeat - the mother of learning). Here are worked out by the evolution of the subconscious mechanisms for filtering the vast amount of processed information, which make people pay attention on recurring events, situations, etc.

Introduction and conclusion should be extremely short (usually a few sentences, and certainly not more than a screen page). At the same time should not be missed key points of the material. With this in mind, we can recommend to write the introduction to the topic or module after the completion of work on them.

The basic study material for each module is structured by topics, and begin, as a rule, it should be with a presentation of theoretical material and definitions, and then move on to the author's explanations and examples. The main material should set out briefly and clearly. Material for in-depth study, as well as minor details and supporting information should be put in the additional material with which the student will be able to if you want to read. Main material should be presented in the most obvious form. This applies to the design of text and illustrations. You can identify such fragments of text material, which would be advantageous to provide a table, drawing, flowcharts, etc. (See, for example, contained in the text of the figure). In the present text should be same type highlights the key pieces of the theory, the terms to decipher, as contained in the glossary, etc. This will help sustain EEMC in the same style.

GUIDELINES ON THE CREATION OF ELECTRONIC STRUCTURE TEACHING COMPLEX

- the curriculum of educational institutions,
- curriculum learning,
- program of academic subject (discipline, training courses)
- tour school subject (discipline, training courses)

• workshop or a practical guide,

• test materials for quality control of mastering the material,

• educational (didactic) materials and problem books,

• guidelines for the student to study an academic subject (discipline, training courses), an organization of self-control monitoring.

CMD can be supplemented if necessary educational institution reference works and dictionaries, periodicals, industrial and socio-political publications, academic literature, readers, links to databases, web sites, help systems, electronic dictionaries and online resources. This allows the CMO to ensure the development and implementation of educational programs.

An important point when creating e-teaching and methodical complex (hereinafter - EEMC) is the construction of its structure, which would serve as guidelines for the student to study the discipline. The structure is similar to the real EEMC consistency of the learning material - it gives the trainee the trajectory of educational resources. Training materials are grouped into themes. This compilation should include:

exposition of the theory (eg, corresponding to a fragment of a textbook containing the lectures);

sample completed assignments with the explanations of the teacher;

tasks for the independent exercise of a student;

fragment of a workshop or practical benefits;

control questions (questions for the repetition);

test of self-control;

a list of recommended books;

other materials additionality depending on the topic.

If more than one order can be combined the general idea (that represent different aspects of a general study the question), these themes are combined into a module. The module is completed in a logical plan fragment of educational material. In this case, it is expedient to precede the study of the module statement of aims and objectives of the module (set the type "you'll learn :.","" after learning you can :.."), and at the end of the study module to summarize (for example, "you learned how to:. ., "" the knowledge you need :.."). In addition, the module can be combined some of the fragments relating to entering into it subjects: quizzes, self tests, a list of recommended books, etc.

Introduction to the discipline as a whole should briefly describe the object, aims and objectives of the discipline, its place in the educational process. The conclusion summarizes the work EEMC and possibly indicates new direction for knowledge. Introduction and conclusion

should be extremely short (usually a few sentences, and certainly not more than a screen page). At the same time should not be missed key points of the material. With this in mind, we can recommend to write the introduction to the module or EEMC in general after the completion of work on them.

When you create a structure EEMC after the distribution of educational materials on the themes and modules are all sorts of guidelines, which can not be attributed specifically to a particular topic. Such materials are made in the section "Additional Materials". It can be methodical instructions for the students of correspondence courses, or guidelines for self-study students, or guidelines for the implementation of student (graduate) work, application, etc. In addition, this glossary (glossary of terms and definitions), index, list of illustrations (if necessary) and other materials, as well as a general list of recommended discipline for the study of literature (to which reference is made of themes and modules).

EEMC must explicitly contain the full title, author information (full name, degree, academic rank, and position, E-mail), code and name of the profession and specialization, the name of an academic discipline (or section), volume hours in total and full-time education, the creation date and date of last update, the volume of printed sheets (The number of printed pages, printed by Approximate structure of the electronic educational and methodical complex (EEMC) Work ProgramIntroduction to the discipline

MODULE 1. Module name

Aims and objectives of the study module

Topic 1.1. Topic name

1.1.1. Name of sub

1.1.2. Name of sub

Test questions

Practical training (seminar)

Tasks

Self-test

Additional materials

Recommended Reading

Topic 1.2. Topic name

1.2.1. Name of sub

1.2.2. Name of undersub

Test questions

Practical training (seminar)

Tasks

Self-test

Additional materials

Recommended Reading

Test questions to the module

Final test to the module

Recommended reading for the module

Conclusion to the module

MODULE 2. Name of the module (filling the same module 1)

Conclusion of the discipline

ADDITIONAL MATERIALS

Methodological guidelines for students of correspondence courses

Methodical guidelines for implementation of student work (project)

Methodological guidelines for the implementation of the diploma work (project)

Glossary of terms and definitions

Test questions

Self-tests

Applications

Recommended Reading

**Conclusions to Chapter 1**

Research and analysis of the problem of an electronic educational and methodical complex, carried out in this chapter, the following conclusions:

The quality of educational information, opportunities, the combined effect;

Constant feedback, the reduction of routine action;

Development of practical skills, extensive computer experiment.

1. The problems of organization of e-teaching and methodical complex, which additionally provides access to students in non-traditional sources of information improves the efficiency of independent work, gives a completely new opportunities for creativity, knowledge acquisition and retention of various professional skills, and teachers allows us to implement a fundamentally new forms and methods of teaching.

2. Analyzed and identified educational, technical and organizational features of electronic educational-methodical complex, which are the main source of improved learning efficiency.

3. Studied the development of promising technologies, e-teaching and methodical complex and determined its main functions and features.

4. Work has been done to hosting the practical part of the discipline "Valeology" for later users, and its registration on the Internet.

# CHAPTER 2. PRACTICAL IMPLEMENTATION e-EDUCATIONAL METHODICAL COMPLEX ON THE DISCIPLINE “VALEOLOGY” LOCATED ON THE INTERNET IN THE EDUCATIONAL PROCESS

## 2.1 Creation and subsequent integration of the practical part of the electronic educational - methodical complex on discipline "Valeology in Internet resources, use of information and mobile communication

The practical part of the discipline "Valeology", namely, tests, quizzes, questions to prepare for the offset will be posted on the Internet by means of HTML as the World Wide Web is woven from Web-pages (Web-pages), and these pages are created using the language HyperText Markup (HyperText Markup Language, HTML). HTML - a markup language. I'm using HTML marks the text document. These labels serve to determine the format (or style), which will be used in the derivation of the text on the screen.

I edit the layout in a text editor: <! DOCTYPE HTML PUBLIC "- / / W3C / / DTD HTML 4.01 / / EN"

"http://www. http://yority.ru/fort//TR/html4/strict.dtd">

<HEAD>

</ HEAD>

<BODY>

</ BODY>

</ HTML>

so looks Base layout.

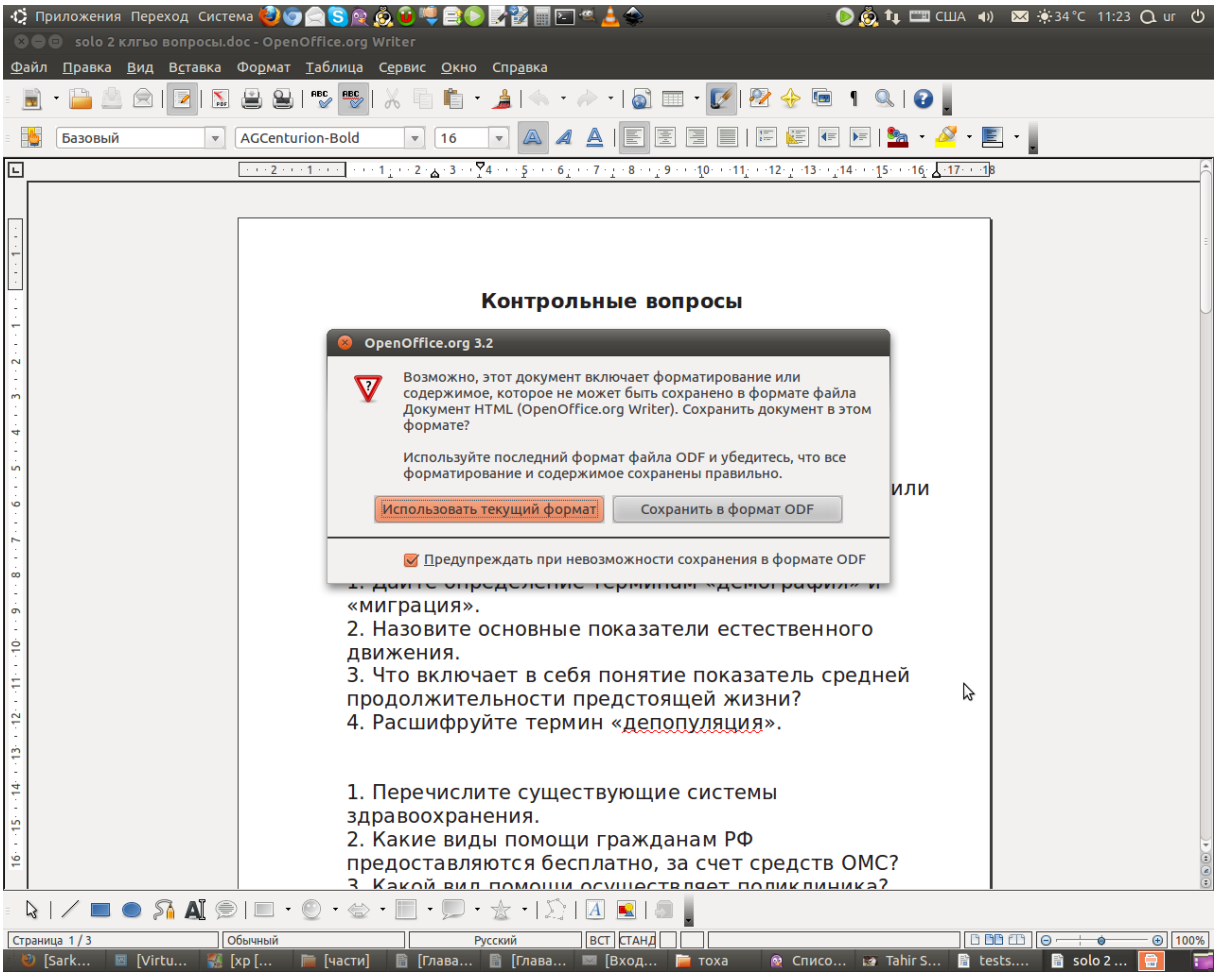



**Fig. 1**

## Integration the soft to internet recourses

Next, putting all the material in a text editor:

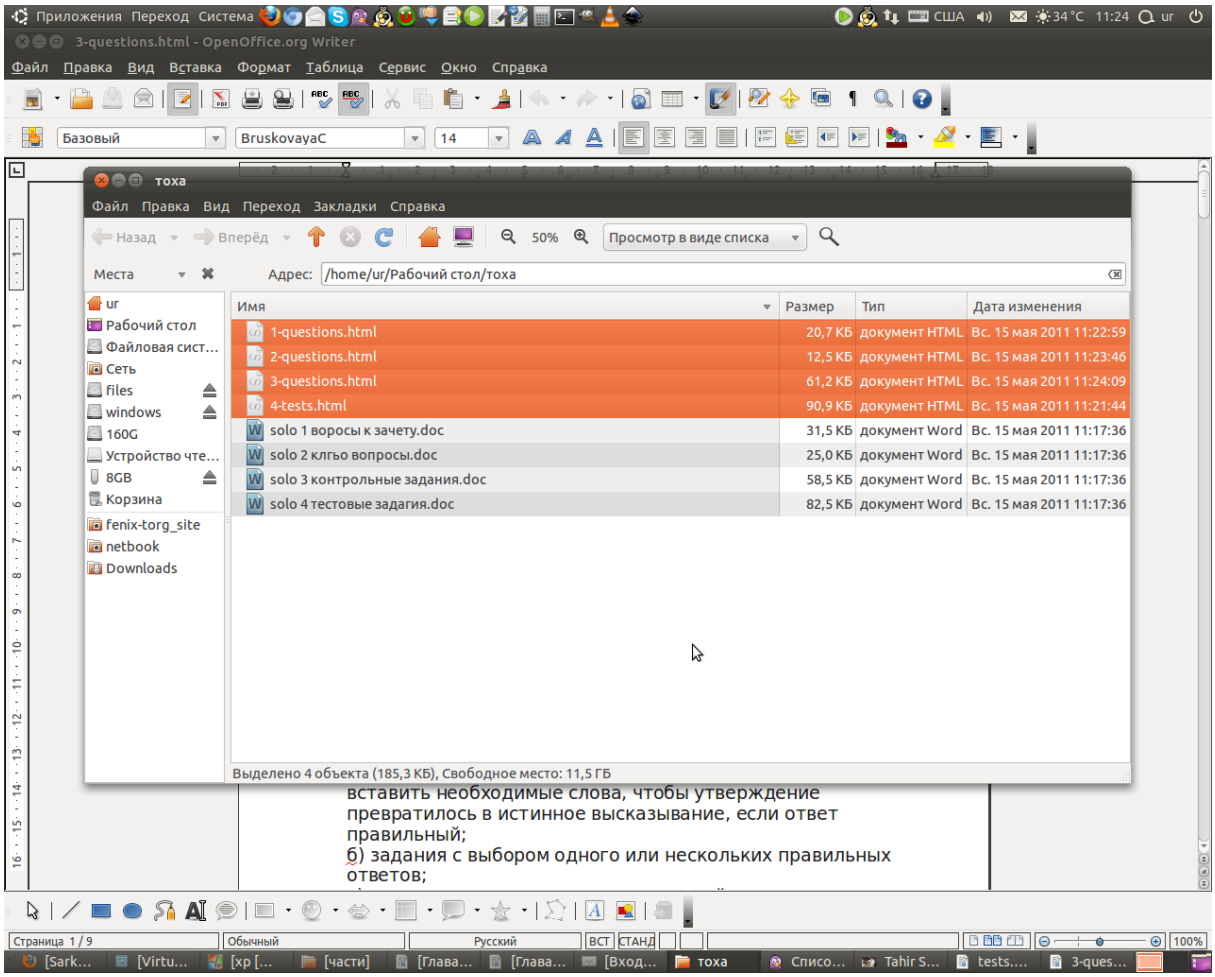



**Fig. 2**

## Integration the soft to internet recourses

After this, pointing out the placement and address the root folder with the material:

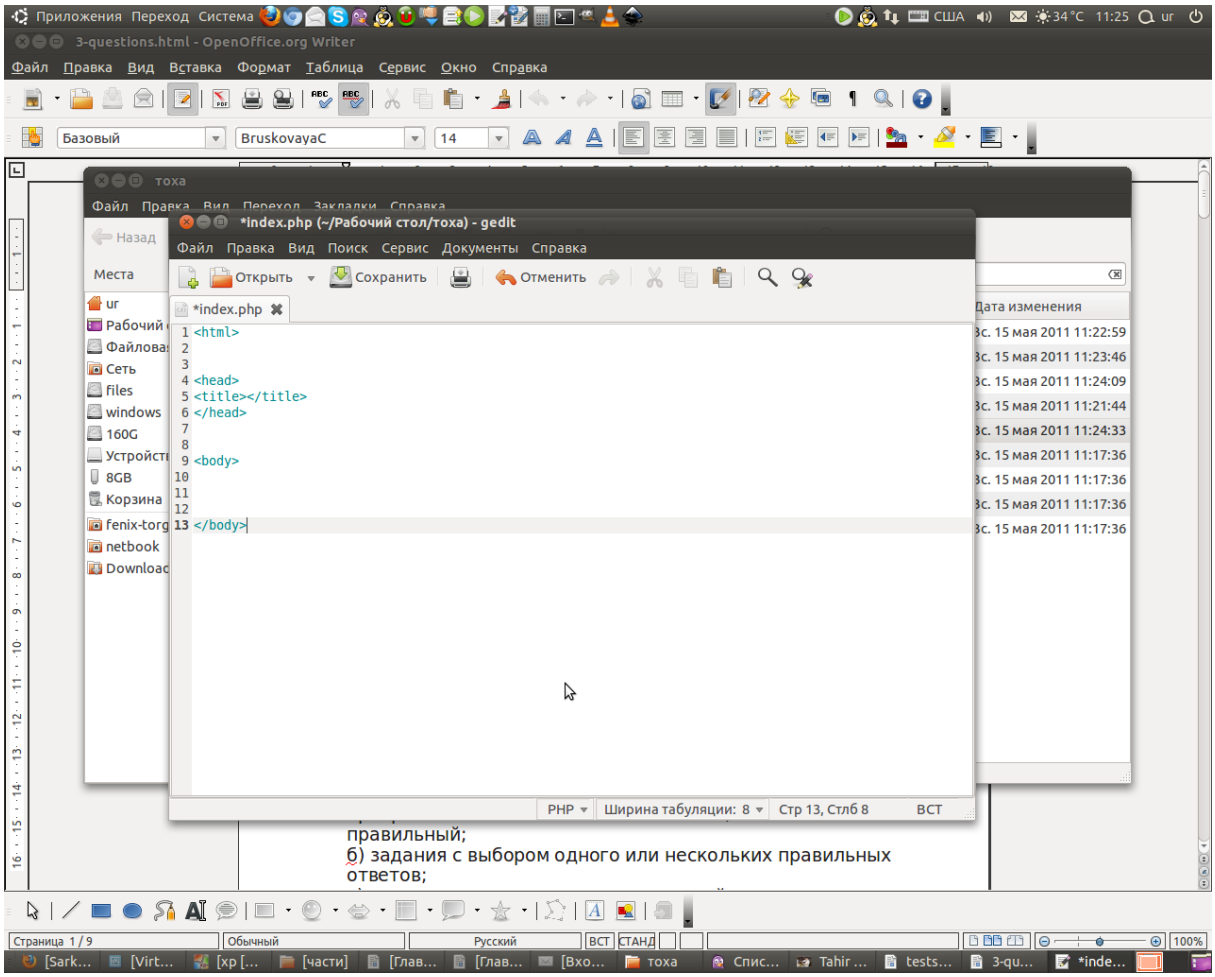



**Fig. 3**

## Integration the soft to internet recourses

then I point out the names of the files and tasks:

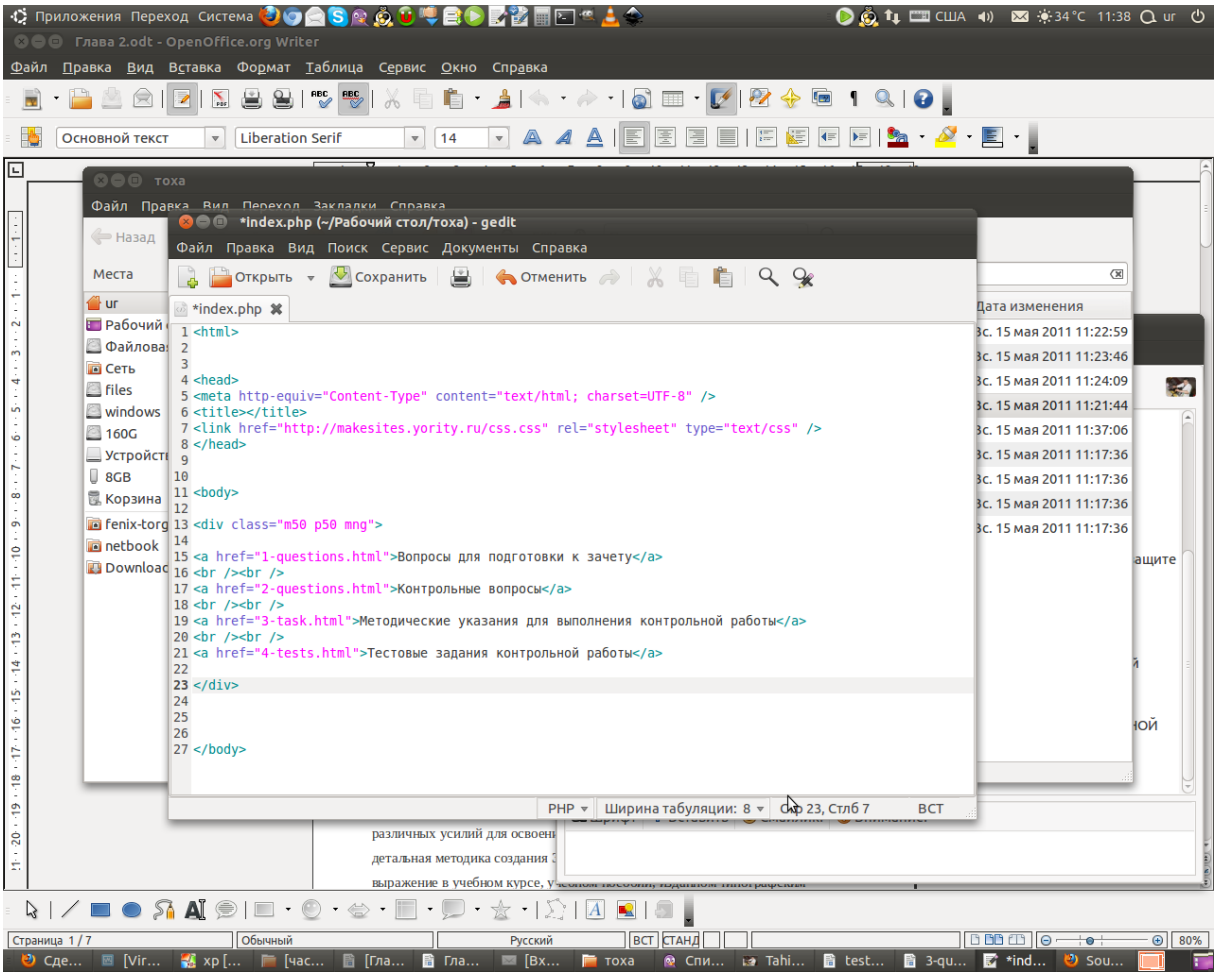



**Fig. 4**

## Integration the soft to internet recourses

after all this work is added to the content portal http://yority.ru which provides space for hosting material that is the practical part of the discipline "Valeology"

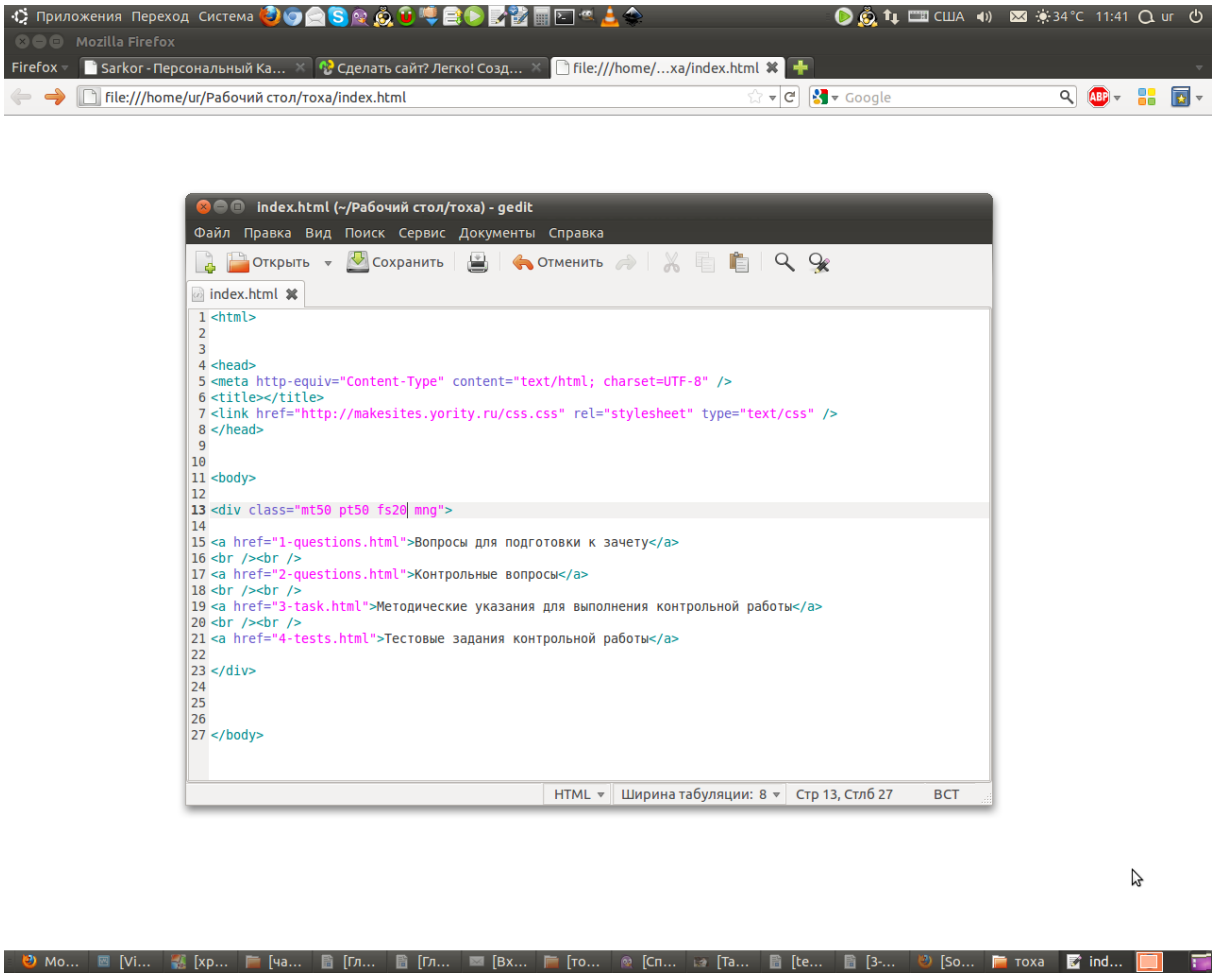



**Fig. 5**

Integration the soft to
internet recourses

and finally all the material is stored on a remote server by means of FTP on the portal, after all this work is added to the content portale http://yority.ru /

## 2.2. The advantages of using mobile and Internet resources in the learning process

Electronic educational-methodical complexes as a means of improving the quality of the educational process in college.

Studies to ensure and improve the quality of the educational process at the university showed that students' attitudes to learning depends on several factors: the value-motivational orientation of students, the nature of the learning process, communication style, ways of organizing the teaching material used pedagogical techniques, assessment system of learning

outcomes. We have identified the main characteristics by which we can estimate the level of individualization of educational technologies used in high school. These we attribute:

- accounting instructor types of thinking and intellectual activity of students;
- motivation of individual students' activity in the exercise of independent works;
- variety of forms of self-organization of individual work with the provision of a package of educational materials focusing on individual psychological personality traits;
- help and support students in constructing their own individual educational strategy based on an assessment of their individual and personal characteristics and interests.

The means, focused on individual psychological characteristics of personality, allows students to independently (or with the direct help teacher-tutor) to develop educational disciplines include electronic educational-methodical complexes (EEMC).

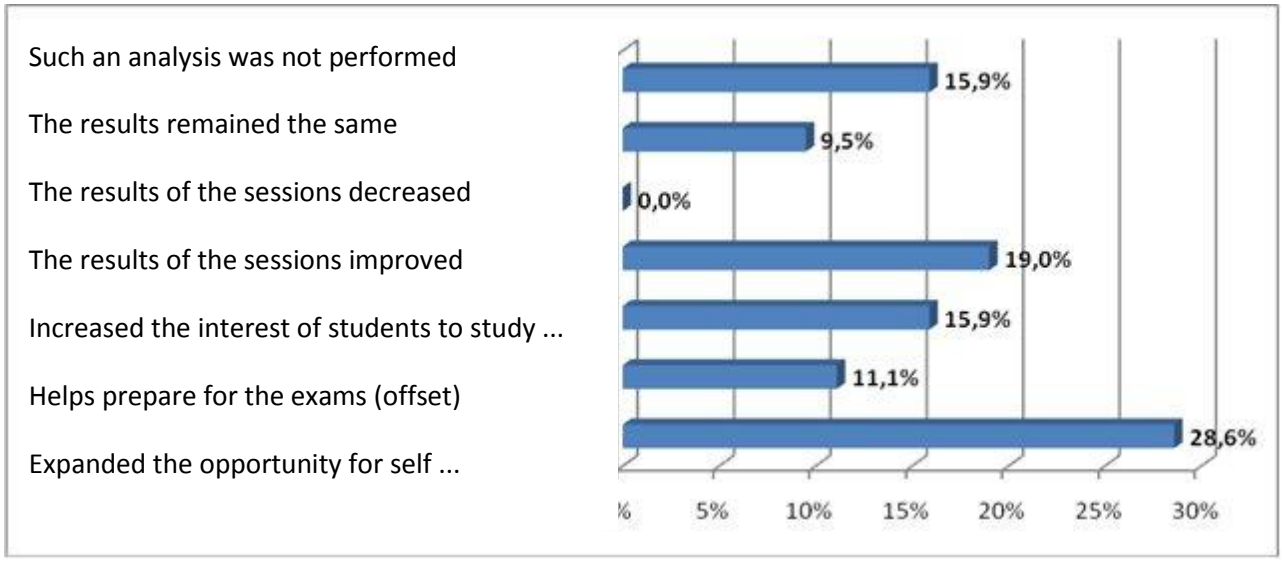
Important role in the management of educational-cognitive activity of students is interactivity. For this e-learning materials should be focused on "dialogue" with the student on a course of study material. In this case, the presentation of textual information is very important style of presentation. Training material should not resemble the article, the text of the academic textbook or a lecture. For e-learning materials most suitable style, reminiscent of a conversation teacher at a workshop or group lessons. Large volume text should be broken into small fragments of training (subsections).

The key issues of designing EEMC include: the preparation of information describing the theoretical material (educational texts, graphic illustrations sketches, scenarios demonstration and illustrative programs and animations, video clips, etc.), creation of exercises for strengthening the process of development theory, development of control algorithms for the organization effective targeting students' cognitive activity. Preparation EUMK can not only fill the shortage of educational materials, but also increases the personal interest of teachers in acquiring new knowledge in the methods for designing training courses.

Implementation EEMC can effectively manage the educational process, creates objective conditions for full self-development of students of educational material and promotes the formation of a modern set of educational materials available to every student, regardless of the form of training.

In the present study was designed and implemented in teaching practice innovative complex methodological support basic education programs, including the information model of a CMO in both print and electronic form detailing the major processes [1] and program-methodical support of the development of CBM represented by works of authorship: "The situation on educational and methodical complex "[2]," A template for creating an electronic teaching-

methodical complex "[3]. During implementation of the educational process EEMC range of disciplines studied the dynamics of the qualitative indicators of student training. In this case, the control sites were selected a group of students enrolled in similar courses before and after the introduction of the learning process EEMC. In the process of ascertaining the experiment were determined for the level of knowledge (learning assessment), students (with a sample sufficient for assessing the dynamics of changes in the level of education). Results of surveys of teachers and students are reflected in Figures.




The study showed that the strength and completeness of the Learning affects self-governing (personalized) learning and developing teaching and application of information and communication technologies.

The studies carried out a comparative analysis of the quality of Learning students of experimental group (using electronic educational-methodical complexes) and a control group of students studying in the traditional educational technologies. In the experimental group increase the quality of learning was 11.7%, including the completeness of learning increased by 11.1%, and the strength of learning has increased to 12,2%.

Pedagogical experiment has shown that developed and implemented in practice EEMC improve the quality of learning skills of students and is one of the factors that increase the quality of the educational process at the university.

Our information XXI century (the age of high technology) requires new approaches to education. Currently, the goals and technology in education in most countries, reflect the ideas of humanistic trends in pedagogy and educational philosophy. Here we are already talking about the formation of personality development as the main component of this goal, that is, training

should be developing in terms of developing independent, creative and critical thinking. For these purposes should be broad information field activities. Various sources of information, different opinions, points of view on the same issue, encourage the person to independent thinking, to seek their own well-reasoned position. This approach requires the definition of certain terms of organization of such a system.
Education system - complete, but an open system, the dominant characteristic of which is its descriptiveness. Information support of the education system can not be confined by such sources as a teacher, textbook, or reference books, the media.
To educate people with a focus on autonomy requires not just a much larger amount of information, and the large variability of information reflecting different perspectives, different approaches to solving the same problems. Only in this case the person to appear, subject to their own search for truth, facts and arguments in support or refutation of an idea, point of view of the problem.
Such a system requires a different didactic systems of other methods and technologies for learning, adequate student-oriented approach to education. Students receive information in addition to traditional teaching materials from the media.

On comprehension, analysis of the adequate perception of which is also required of formation of critical thinking. In this regard, information source is the global telecommunications network - the Internet. With the advent of the Internet to create a fundamentally new situation in the education system. On the other hand, it becomes urgent problem of forming a proper moral and social position, forming an independent, creative and critical thinking. Ability to independently analyze information critical to treat it - the only way to correct selection of information. On the one hand, it's unlimited ability to communicate with the world. And this is getting not only the official information from the network, but also unofficial information in the course of interpersonal communication. This is an opportunity to use databases of scientific and information centers worldwide. This possibility of joint projects with various experts from all universities in the country and the world. It's finally possible to analyze cultures, it is possible to find a basis for understanding each other, and hence respect for another's culture and traditions of others through this understanding. Finally, an opportunity to receive education at a distance.

Function of communication in the educational process provided that you have certain pedagogical properties. In the classification of didactic properties on the Internet this problem, researchers have distinguished two main classes of properties of computer telecommunications.

Properties associated with the telecommunications framework, ie, technological features and properties associated with the use of computers, connected with didactic objectives.

Online students are being treated primarily for additional information on a particular issue relating to the educational process. How to deal with this information, what to do - students learn or during a specially organized by the teacher in the classroom learning activities, or from the methodical organization of educational material on the network (distance courses). Themselves telecommunications help solve the problem posed by teaching more effectively by means of forming network services (search engines, web-technology, e-mail, etc.). Methods of mobile software in the educational process. Mobile lifestyle permeates all new areas of human activity. The wide proliferation of wireless technologies and mobile computing, actively introducing even in areas that traditionally did not lack in computer software, can significantly change the approach to model the use of digital technology and increase its efficiency. Thus, the use of mobile and wireless Internet access in education brings to the learning process are obvious advantages.

### 2.3. Methods of application of the practical part of internet media in education

Mobile devices, combined with wireless technology can make learning more interesting, more interesting, to conduct classes outside of the educational facilities, diversify the after-school and extracurricular activities. It offers students and their teachers - all variety of information the World Wide Web, available in any form (text, graphics, audio, video) at any point covered by a zone of radio coverage of a wireless network at any time, not confined to lessons. Modern technology enhances the interaction between students and teachers, simplify teamwork, helping students more quickly to get help from teachers. Use of mobile phones and wireless communication technologies change the methodology of the learning process: instead of reading the "lectures" Teachers have the opportunity to engage students in the process of discussion, sharing of creativity that makes learning not only more efficient but also enjoyable for students. Today, active development of new courses with the active use of Internet information resources. Here are a few vivid and compelling examples of how mobile technology can change the learning process.

**College Stentonberi, England**

Founded 25 years ago, college Stentonberi (Stantonbury College) is now one of the UK's largest public high schools, with more than 2,5 thousand students between the ages of 12 to 18

years and about 160 teachers. The school, located in an area of 3.5 hectares, there are about 130 classes, recreation center and theater.
This school investment in technology has always been considered an important factor in improving the quality of the educational process from the point of view of teachers and students. In college, there is a local network that is used to provide access to email and the Internet, and also supports the administrative and training activities of the school. In this case, the school also decided to organize a network access from classrooms, without setting in each room stationary desktop PCs and without violating the information security system as a whole (this is particularly important because of the school network, passed confidential information about students).

As a result, on-campus wireless network was deployed initially comprising 61 access points, plus purchased 185 mobile PCs with wireless adapters.
A significant advantage of wireless mobility for both students and faculty was able to use mobile devices to connect to the Internet during class. In addition, teachers have found additional benefits, getting instant access to personal business students, are stored centrally, and which contain lots of information about attendance and achievement of every student's college. Once teachers have laptops, the school has set a target to improve the learning process and reduce the burden on teachers by improving systems for collecting, storing and transmitting information. To be able to take advantage of new technologies in school even revised system of grading, record keeping and reporting.

**School Rendalfa, Huntsville (Alabama, USA)**

Back in 1996 the school named. Rendalfa was to seek ways to equip the senior classes of high-tech innovations that students get used to it and actively used in the learning process. In 1999, the school staff were given laptops, and the school was deployed wireless access network. In fact, the main initiators of this were teachers, mobility, and the creative fervor that restrained affection stationary computer to a strictly defined classes.

At first laptops were distributed to teachers and school students, but the success of the event exceeded all expectations, so now mobile PCs in the School. Rendalfa equip even the middle classes. Satisfied by such innovations were not only students and teachers but also parents who are pleased and proud to have seen how their offspring briskly homework is not old-fashioned notebooks, and on-the-art laptops.

WiFi in School. Rendalfa improved and training methodology. Pupils not only receive information from the Internet, but also have the opportunity to quickly discuss it by asking the teacher through mobile PCs and wireless technology.

According to teachers, the wireless network has increased the creative content of their work. In addition, students now have great respect for their teachers, seeing how they have mastered the modern computer technologies

**Kiev National University. Taras Shevchenko**

The wireless network of the Kiev National University, thanks to the efforts of specialists of companies MUK, Intel and the KNU itself, includes the currently five access points, the production of Cisco Systems, the combined fiber optic ring backbone. When the project was also used passive networking equipment company AMP. In the area of wireless coverage, implemented the first phase of the project and having a centralized structure, are all the main places of public access, located on the second floor of the main building of the university: many classrooms, conference rooms, meeting hall of the Academic Council. Flexible security system ensures confidentiality of information transmitted, and allows you to control Internet access for wireless users.

The uniqueness and complexity of the project were that all work is performed in the building housing the Red KNU, which is an architectural monument of the XIX century and virtually eliminates the possibility of laying the usual cable network. Designed by Vikentiya Beretti in 1837-42 GG in the classical style main building has a wall thickness of NUC is not less than one meter. It was therefore decided to create a "backbone" of the network infrastructure of the Red hull based on wireless technology standard 802.11bc using wireless access points, wireless bridges and directional antenna.

Implementation of this project is an important step towards the creation of educational programs at the most popular IT technologies (eg, the organization authorized the teaching of disciplines related to wireless networks). In addition, it will be of great help to students and teachers who have already got a mobile technology or are going to do it, as well as guests of KNU, foreign delegations. Now, users of mobile PCs based on Intel Centrino Mobile Technology or other devices equipped with built-in wireless access and the appropriate PCMCIA-card, being in the red building NUC will be able to gain access to the Internet or corporate network of universities. There are plans to use the wireless network and to automate the selection committee, as well as an online publication of statistics in the course of taking exams.

As part of further development of this project will create a KNU Wi-Fi-equipped laboratories, certification of instructors, the increasing number of wireless access points to 10,

and the transition to a distributed network structure and the use of Wi-Fi telephony. In addition to the project laid the technical possibility of a rapid transition to future standards for wireless technologies such as WiMAX.

The introduction of wireless data network in the NUC will expand the training of qualified specialists and deepen research in promising areas, will facilitate the development of new courses and the use of advanced technology and training sessions, as well as during independent work of students and teachers.
Methodological scenario learning situations:

Let us turn to the analysis procedures for the management of the training situation, examined the materials for specific projects (scenarios) of certain types of studies (abstracts problematic lecture, seminar, discussion) on various topics of the courses of "common", "age" and "educational" psychology. Chosen as the object of analysis of the situation problematic lectures and heuristic conversation due to the fact that the design of these kinds of exercises, meets the most difficult yet, because of supply problems one-sidedly, in the context in which it is convenient for the teacher, but not universally.

Problem lecture or a seminar-discussion begins, not where the teacher simply points to the contradictions embodied in the logic of scientific research problems, and involves the audience in a discussion on the planned scheme, and where it is given objectively revealed in the contradictions of science (trends, approaches, position), refers to the experience of the audience to identify, update, relate the approaches, attitudes, current students, with existing trends in science in the analysis of the problem. Should dissect two different tactics design problem situation - moving to the problem of subject content knowledge and the subjective experience of an audience of the logic of scientific problem solving, where the latter tactic deliberately creates a new subject of cognitive activity.
Therefore, the most important point of concern learning situation serves the starting point of the upcoming dialogue, ie introduction to the problem. The function of this initial component of the learning situation is to provide a coincidence and coherence of dialogue that creates "the possibility of the learning process itself as a joint cognitive activity." Various tactics introduction to the problem, ultimately, determine the larger or smaller possibility of forming the ability to see the problem, to problematize the phenomenon and the situation. The choice of tactics depends on the success of the formation of other components of the analysis and the overall solution - identifying and fixing potential and planned approach to analyzing and solving problems identified typology of approaches to the problem specification, the choice of measures of the adequacy of the proposed solutions, etc.

Heuristic conversation is one kind of subject lectures, which allows you to more fully demonstrate the various aspects of the process of formation of students of all structural components of the analysis and solution. Heuristic conversation - is a technique of constructing a certain way of thinking by transformation of the individual points of view in a joint study of the problem. In this case, heuristic conversation requires a teacher from one side of improvisational skills, which are based on proficiency with various aspects and levels of decision problems, and the other - ways of constructing dialogue forms of interaction with the audience at all stages of the solution. This raises the question of where the problem lectures in the form of heuristic conversation in the lecture course and not each lecture should be deployed outside the dialogue, often problematic and the teacher lectures monologichny includes different "voice" is implicit, not out of the scope of monologiki. Such a conversation is necessary for creation of a special intellectual situation, special use case - reflections of students on the general and his own understanding of subject matter, one way or another, has already been achieved as a result of previous work. Therefore, the most proper heuristic conversation precedes problem lectures monologue in which the teacher introduces students to the problem, outlines possible approaches to its analysis on material factors and comparison of different theories, and introduces some terms and conditions precedent for its solution, thus creating the ground for subsequent problematization external dialogue. We emphasize that the methodological meaning of the introduction of heuristic conversation is to achieve a specific didactic purpose, namely to turn the students to the new reflexive position in relation to their own ways of thinking about knowledge in an academic subject.

## 2.4. Methodical development of the main occupations of the discipline "Valeology" with the use of educational technologies

**Methodical development of educational lectures**

Theme lecture.

Rationale for choosing the topic.

1) Definition of place and meaning of the theme in the whole course (context).

2) The selection of bibliography on the subject (literature for teachers, literature, recommended for students).

Forms of organization of the lecture.

1) Audience (nature and level of preparedness of trainees).

2) The purpose of the lecture (plan, the basic idea of lectures, bringing together all the subject content).

3) Tasks lectures, implementing the basic idea:

a) The composition and sequence of tasks;

b) the nature of problems: informative, analytical, organize, problem;

c) the funds necessary for students to solve these problems;

d) emotional positions and attitudes that form the teacher with the audience in solving tasks.

1) The organizational form of lectures:

a) monological utterance;

b) monologue based on audiovisual media;

c) monologue with the elements of heuristic conversation;

d) heuristic conversation;

d) dialogue-discussion (two teachers, expressing opposing views on the problem under discussion).

5) Feedback - Mini (express) retain control of attention.

**I. The content of the lectures.**

1) Plan and outline the content of the lecture.

2) Teaching tools and teaching techniques to ensure integrity, regularity, consistency, accessibility, clarity, evidence, etc. (select the fields outline).

**II. A complete image of the teacher during lectures**

1) The forms of cooperation of the teachers with students in the process of solving each of the sections of the content of the lecture (joint problem solving, imitation of the model, the partnership).

2) linguistic form of expression (vocabulary, grammar, style).

3) Emotionally expressive means of communicating with an audience of teachers (gestures, facial expressions, pantomime, vocal mimicry - intonation, loudness, tempo, rhythm, pause).

**Methodical seminars**

I. Subject classes.

1) Rationale for choosing the topic.

2) Locating topics in the curriculum.

3) The purpose of training. Objectives: cognitive, educational, methodical.

4) References. Rationale for the selection of recommended books based on the level of reading, the complexity of the texts.

P. Form of the seminar.

1) Rationale of the form of a seminar in connection with the nature of the training audience:

- The question-answer (survey);
- detailed conversation on the basis of the plan;
- Reports to the mutual review;
- Discussion of written essays with elements of the discussion;
- Group discussion: guided, free;
- training and role-playing game.

2) The program pre-orientation of students in the topic, objectives, facilities, operations, character classes in literature, the roles the participants, the requirements for reports, abstracts, shape and nature of the discussion topics.

III. Plan and outline of the classes.

1) The program content classes: the main sections of the theme, the main tasks of each topic section, fixing the basic contradictions in the course of solving the problem.

2) Abstract of the content sections of the program. The selection of teaching methods that ensure the identification of contradictions, evidence and validity of the considered viewpoints. Allocation of positions and objectives, involving forms of group discussion. Methods of group communication at different stages of training.

3) Summary of the discussion of the topic at seminars.

4) Analysis of the seminars after the event.

**Conclusions to Chapter 2.**

The chapter found in organizing the implementation of mobile software in the educational process and place their approbation by the example of the course "Valeology" which find the following:

1. Analyzed pedagogical techniques, the specifics of which focuses on the direct use of Internet resources

2. Identified methodological features of the methods used for the practical part of internet media in education.

3. Designed the basic methodical study of the discipline "Valeology" using educational technologies.

4. Shown the method of using developed  product in educational process.

# CHAPTER 3. SAFETY OF LIFE

## 3.1. Safety at work for the PC

PC users experiencing the harmful effect of the PC, so users' desktops must meet a safe and friendly working conditions. In this regard, it is expected to develop a set of measures to ensure a safe and friendly working conditions and to consider environmental issues.

When developing a software product for developers working on PCs, continuously or intermittently, the following dangerous and harmful factors:

• Air pollution by harmful substances, dust, microorganisms and positive Aeron;

• Non-compliance norms of microclimate parameters;

• The emergence of on-screen statistical charges, causing dust particles to move to the nearest grounded object, they often face is the developer;

• Increased level of noise in the workplace;

• Increased level of statistical power when properly designed work area;

• Dangerous voltage level in a circuit whose closure could occur through the human body;

• A wide spectrum of radiation from the display, which includes an X-ray, ultraviolet and infrared regions, as well as a wide range of electromagnetic radiation at other frequencies;

• Elevated levels of electromagnetic radiation;

• Elevated levels of ionizing radiation (soft X-ray, gamma - radiation);

• Absence or lack of natural light;

• Insufficient light the work area;

• Increased the brightness of light;

• Low contrast;

• Direct and Inverse blestkost;

• Increased pulse light output (flicker);

• Prolonged stay in the same position, and repeat the same motions leads to a syndrome of prolonged static loads (PRSP);

• Inappropriate workplace organization;

• Inconsistency of ergonomic equipment characteristics normalized values;

• The mental strain, which is due to the nature of tasks, leads to a syndrome of prolonged psychological stress (PRSP);

• A large amount of processed information results in a considerable strain on the eyes;

• Monotony of work;

• Neuropsychiatric load;

• neuro-emotional stress burden;

• The danger of fire.

When working on a PC user's perspective, bodies can withstand a greater load with simultaneous continuous tense labor, which leads to disruption of the functional state of the visual analyzer and the central nervous system.

The main burden related to computer use have on the eyes. Their fatigue depends not only on the quality of the image on the screen, but also from the general room illumination. According to the hygiene standards illumination on the table and the keyboard should be at least 300 lux, and the vertical illumination of the screen - only 100-250 lux. Research physiologists and hygienists have convincingly proved that half-light, and too high illumination of the screen lead to rapid eye fatigue.

Violation of the functional state of the visual analyzer seen in the reduction of visual acuity, stability of clear vision, accommodation, electrical sensitivity and lability.

Causes of violations of the functional state of the visual analyzer are constant pereadaptatsiya organs of vision in the presence of a field of view of the object of discrimination and a background of varying intensity, lack of sharpness and contrast of the image on the screen, a Line of perceived information, constant brightness flicker, the presence of bright spots on the keyboard and the screen due to reflection luminous flux, a large difference between the brightness of the working surface brightness I surrounding objects, the presence of equidistant objects low-quality source of information on paper, the irregular and insufficient lighting in the workplace. Along with the above common features of the user in the workplace, there are features of PCs perception of information from the monitor screen.

Feature of the perception of information from the monitor screen of a PC user agencies are:

• monitor screen is the light source, which in the process of working directly addressed organs of the user that operator enters into another psycho-physiological state;

• attachment the user to the monitor screen is the reason for the duration of immobility of the eye and intraocular muscles, causing them to weaken;

• Persistent and high concentration of view leads to great stress and, consequently, to exhaustion of view, contributes to short-sightedness, headaches and irritability, nervous tension and stress;

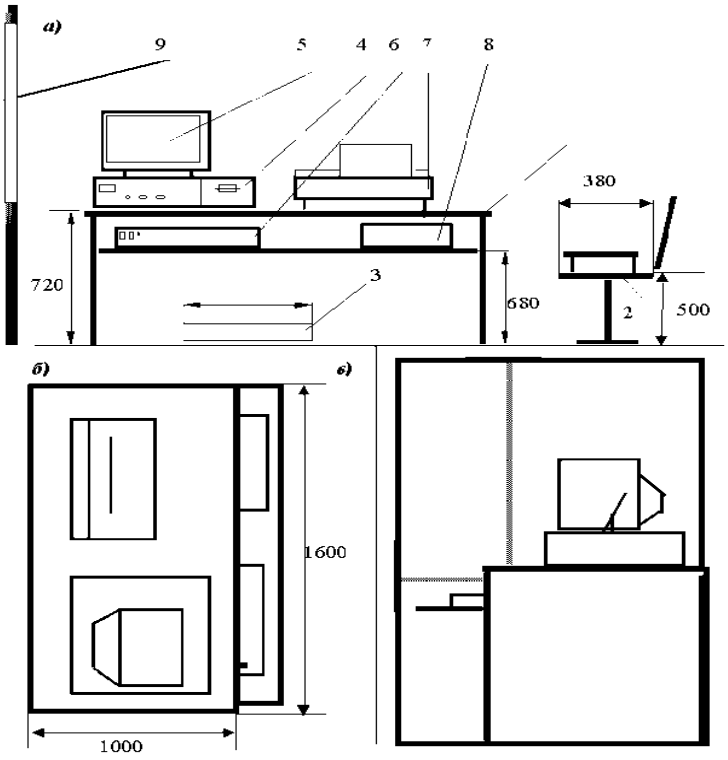
• long-term attachment to the attention of the user monitor screen creates an uncomfortable perception of information, as opposed to reading conventional print media;

• monitor screen is the source of the incident light flux on the organs of the user, in contrast to conventional printed information that is read by reflected light beam;

• information on the screen is updated periodically during scanning electron beam on the surface of the screen and occurs at low frequency flicker, in contrast to the constant information on paper.

Placing the computer is recommended so that the light (natural or artificial) fell from the side, better on the left, it will save you from interfering shadows and help to reduce illumination of the screen. As a source of illumination is recommended to use fluorescent lamps with fixtures such as the LB series LPO36 with bars. Incandescent lamps are best suited for local coverage area of the working paper (keyboards, books, notebooks). Council home users: try to make a chandelier in your working room had closed lower light, so that on the screen fell scattered reflected light. This eliminates glare and ease of visual work. Here is a table lamp, on the contrary, should have a dense, shade that directs light right into the zone of the working paper.

The scheme operator's workplace is shown in Fig. 1.1. The figure numbers mean:
• table;
• chair;
• footrest;
• System unit;
• Monitor;
• keyboard;
• Printer;
• paper tray;
• window.




### 3.2. Emergencies. Protecting the enterprise in emergency and disaster

#### 3.2.1. The concept of an emergency. Stages of Emergency

It is known that any activity is potentially dangerous, and are themselves risk permanent character (permanent, continuously ongoing, from the Latin permaneo - remain, continue).

The potential danger - a danger hidden, uncertain in time and space. Realized the potential danger of a cause and if the fallout will be significant, then this event is classified as an emergency.

Emergency (disaster) - this is the situation in a certain area, created by the accident, natural hazard, natural or other disasters that may cause or have caused human casualties, damage to human health or the environment, considerable material losses and violation of conditions of people's life.

Regardless of the causes of the disaster, in their development can distinguish five main stages:

- Arising - the appearance of conditions or prerequisites for emergencies (natural strengthening of activity, the accumulation of strain, defects, etc.)
- At this point, the human factor is important because statistics show that 70% of man-made accidents and disasters is due to human error.
- Culmination - the stage of energy release or the substance. At this stage, the overwhelming negative impact on human and environmental hazards and injuries emergencies.

- Attenuation - localization and liquidation of emergency its direct and indirect effects. Duration of this stage is different, there may be days, months, years and decades.
- The period of recovery.

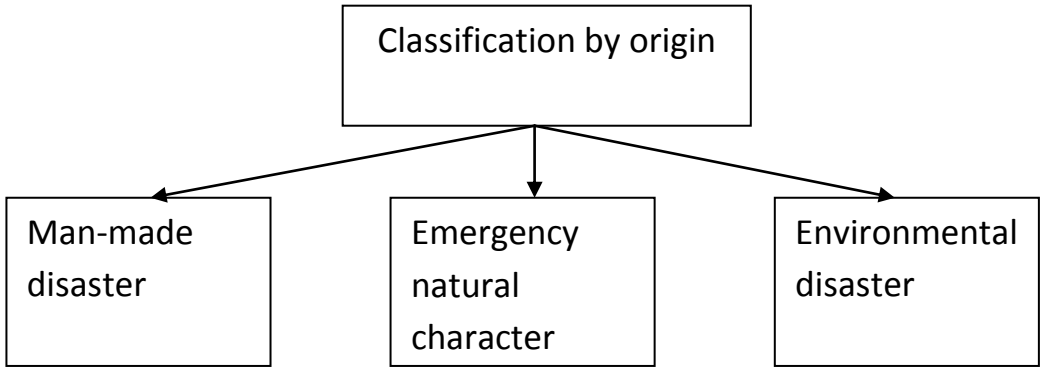
### 3.2.2. The problems solved in emergency. Classification of Emergencies

All emergencies can be classified into three basic principles - the scale of distribution, rate of development and the nature of origin.

In the classification of disaster on the scale of distribution. Should consider not only the size of the territory, subjected the impact of emergency situations, but also its possible indirect effects. These include severe violations of institutional, economic, social and other relevant links operating over large distances. Moreover, taking into account the gravity of the consequences, which in a small area of disaster can be immense and tragic.

Each type of disaster has its own characteristic velocity of propagation of the danger, which is an important component of the intensity of occurrence of emergency events and characterizing the degree of suddenness of the impact of damaging factors. With this perspective, disaster can be categorized by rate of development.

Each disaster has its reasons, in this context, they can be classified by origin.




Classification of emergency descent

### 3.2.3. Planning for life safety in emergency

In emergency situations of war and subject to the protection of all people, but defended his individual groups differentially. The main ways to protect the population in emergency situations in modern conditions are:

- shelters in the defenses, in the simplest shelters in the area;
- dispersal and evacuation of people from major cities in the suburban area;

- timely and skillful use of personal protective equipment.

To shelter the people in advance in the event of disaster built defenses. The protective structures are divided:

- by appoint (to the public or for the redeployment of the administration);
- by location (built-in, freestanding, in mines, subways, etc.);
- time construction (being built in advance of the special period);
- in nature (refuge or shelter).

Shelter is a sealed type of protective structure that protects it sheltered people from all the nuclear explosion, toxic substances, bacterial agents, high temperatures and noxious fumes.

Shelters are equipped with all life support systems. Air supply system includes air inlets, dust filters and filter-sinks, fans and protective devices.

Removers air is carried out:

- mode of pure ventilation when outside air is cleared only by dust breathability 8-13 $m^3$ per person per hour;
- filtration in the regime when the air is further passed through a filter-absorbers for the purification of chemical agents and bacterial agents with the breathability of at least 2 $m^3$ per person per hour.

Regeneration of the air by means of appropriate ammunition.The purified air is blown by fans on the air ducts in the compartments of asylum.

Water system provides people with water for drinking and hygiene. It is carried on the outside water supply network.

### 3.2.4. Liquidation of consequences of emergencies

Emergency response includes an incident in the zone and in adjacent parts of the forces and resources of organizations for emergency situations of all kinds of intelligence and emergency operations, as well as the organization of livelihood of the affected population and the personnel of these forces.

Emergency response is completed at the end of the rescue and other urgent works.

Rescue and other urgent work in the lesions include:

- exploration of the lesion, which produces real data about the current situation;
- containment and fire fighting, rescue people from burning buildings;
- investigation and autopsy trapped defense, search and retrieval of the rubble of the victims;

- providing medical assistance to victims, evacuation of affected health facilities, evacuation of people from areas of possible catastrophic effects (flooding, radiation and other contamination);
- sanitization of people, disinfection of transport, technical systems, buildings and industrial facilities;
- immediate emergency and reconstruction work in industrial settings.

Exploration in the shortest possible time should determine the nature and limits of destruction and fire, the extent of radioactive and other kind of infection in different parts of the fire, the presence of infected people and their condition, possible ways of input rescue teams and medical evacuations. According to intelligence determine the amount of work, refine the methods of conducting search and rescue and emergency operations, develop a plan of liquidation of consequences of emergency events.

Plans to eliminate the consequences outlines a specific list of urgent work, determine their sequence. Given the capacity and timing of the rescue forces and determine the means for their implementation. In the first place in the plan should include efforts aimed at ending the impact of external factors on the object (if possible) the localization of the lesion, staging means to prevent the spread of risk on the territory of the object.

As the rescue forces using trained rescue teams, set up in advance, as well as the newly formed units of the number of workers of the industrial facility (the civil defense facility). Rescue units may be subordinated to the management of the facility or the district administration, the city area.

As the technical means of object used as equipment (bulldozers, excavators with interchangeable equipment, dump trucks, graders, motor and trailer rollers, pneumatic tools, etc.) and special equipment in the possession of rescue units (special conveyor machines, grubber-gatherers, hand rescue tools, controls and life support).

**Conclusion to Chapter 3.**

Application of computer technology in the educational process is impossible without human contact and technology. Therefore, considered in this chapter, security can draw the following conclusions:

1. In any educational process, based on computer and telecommunication technologies, must include elements of knowledge and skills on safety.

2. All participants in the learning process should be aware that the flight of "student - computer – teacher" is included as part of a broader system "man – machine".

3. In accordance with the fundamentals of ergonomics, we should distinguish, for some indicators of person than car, and for some indicators of the machine than man.

4. At the educational managers are responsible for:

- The organization of comfortable, safe working network sites to users with computers;
- Maintaining the given regime of operation of the system;
- Select the safe structure and technologies to network components with minimal impact of hazardous and harmful factors;
- Periodic monitoring and certification of equipment for compliance with its requirements of standards and safety standards;
- Regularity of instruction and examination of knowledge and skills to work in the system "man – machine".

## CONCLUSION

In this work preparation for the thesis the author were solved the following problems:

1. An analysis of scientific literature on the application and development of training complex in the educational process.

2. There is an analysis of learning software.

3 The structure and content of the CMD at the rate of "valueology.

4. Formed by information, education, visual materials for filling the content of EEMC.

5. Developed tests and other control measures.

6. Presented methodical recommendations on the use of EEMC in the learning process.

7. Electronic shell of EEMC of the discipline "Valeology" is located in the Internet GAN.

EEMC is often defined as a combination of various teaching-learning, including printed manuals, technical training, training programs and telecommunication facilities designed to manage the student's independent work in studying the course. EEMC some discipline in the modern conditions of differentiation and standardization of education is an important means of methodical support of educational process in a unity of purpose, content, teaching processes and organizational forms. Educational-methodical complex is an effective tool for students studying disciplines and for their independent work that provides a modular construction of training courses. Training module, acting as a structural unit EEMC, is simultaneously: 1) target action program students, 2) bank information, and 3) a methodological guide for achieving educational goals, and 4) a form of self-knowledge of the student and their possible correction, as well as securing the practical part of mobile communications. Possible structural components EEMC: - paper editions - Network electronic books (e-textbook) - Computer systems for learning in hypertext and multimedia options - the audio training and information materials - video training and information materials - laboratory works (including laboratory works remote access) - Trainers, training exercises with remote access - database information and knowledge with remote access - the electronic library with a remote (network) access; - teaching computer-based learning environments - teaching based on virtual reality - teaching on the basis of geographic information systems (GIS). Modern multimedia training course - it is not just an interactive text (or hypertext) material, supplemented by video and audio recordings and submitted electronically. In order to maximize the effect of training, it is necessary that educational information was presented in various forms and in different media and located in a remote location on means of mobile communications. EEMC basis on its interactive part, which can only be realized on a computer or mobile phone. It may include: -e-book - electronic directory -

training complex (computer models, designers, and trainers) - book of problems - an electronic laboratory work - computer testing system. As part of the graduation project developed an electronic teaching-methodical complex "Valeology".

**The list of literature:**


1. Постановление Президента Республики Узбекистан от 02.06.2005 №ПП - 91 «О совершенствовании системы подготовки кадров в сфере информационных технологий».

2. Указ Президента Республики Узбекистан И. А. Каримова от 30.05.2002 «О дальнейшем развитии компьютеризации и внедрении информационно-коммуникационных технологий».

3. Андреев А. А. Средства новых информационных технологий в образовании: систематизация и тенденции развития. - М.: ВУ. - 1995. – 68 с.

4. Васюкевич В.В. Электронный учебно-методический комплекс на основе модульно-рейтинговой технологии обучения: дис. Мурманск, 2010. 215 с.

5. Кучеренко Н.Л., Якиманская Н.Л. Реализация информационных технологий в учебно-методических комплексах // Вычислительные и информационные технологии в науке, технике и образовании: материалы международ. конф. Алматы, 2008. [Электронный ресурс]. – Режим доступа: http://www.nsc.ru/ws/show_abstract.dhtml?ru

6. Васюкевич В.В. Внедрение электронных учебно-методических комплексов по дисциплинам в образовательную практику ВУЗа // Инновации в образовании. 2010. №2. С. 39-55.

7. Копытова Н.Е., Никишина Е.В. Электронный учебно-методический комплекс «Мировые информационные ресурсы» // Вестник Тамбовского университета. Сер. Естеств. и техн. науки. 2008. Т.13, вып.1. С.149.

8. Солянкина, Л.Е. Учебно-методический комплекс как средство профессионального саморазвития студента: дис. Волгоград, 1999. -217с.

9. Краснова, Г.А., Беляев, М.Н., Соловов, А.В. Технологии создания электронных обучающих средств. - М.: МГИУ, 2002.

10. Кулагин, В.П., Краснова, Г.А., Овезов, Б.Б. Информационные технологии информатизация. М.: Янус-К, 2005. -180 с.

11. Основы теории дистанционного обучения [Электронный ресурс]. Режим доступа: http://www.iet.mesi.ru/dis/14o.html

12. Потеев, М.И. Электронный учебно-методический комплекс как элемент системы открытого образования / М.И. Потеев, С.М. Вергезова, Е.А. Сергеева // ХП Всероссийская научно-методическая конференция «Телематика 2005». - Санкт-Петербург, 6-9 июня 2005г. [Электронный ресурс]. - Режим доступа: http://tm.ifmo.ru/tm2005/db/doc/get_thes.php?id=84.

13. Селевко Г. К. Педагогические технологии на основе информационно-коммуникационных средств. - М.: НИИ, 2005. – 78 с.

14. Holtbeng B. Status and trends of distance education. - London.: Kogan Page. - 1999. – 58 с.

15. Захарова И. Г. Информационные технологии для качественного и доступного образования // Педагогика. - 2002. - №1. - С.53-59.