STATE COMMITTEE OF COMMUNICATIONS, INFORMATION AND TELECOMMUNICATION TECHNOLOGIES

TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES

"Allow the thesis defense"
Head of department "IET"
_____E.A.Migranova
« » _____ June 2014 y.

FINAL QUALIFYING WORK

on theme : "**DEVELOPMENT OF LEARNING PROGRAMM FOR CREATING EDUCATIONAL PROJECT (MOODLE SYSTEM)"**

Graduate _____ Valiev A.
signature

Consultant _____ Risyukova Y.V.
signature

Life safety consultant _____ Kodirov F.M.
signature

Reviewer _____ Khaytmatov U.T.
signature

Tashkent 2014

STATE COMMITTEE OF COMMUNICATIONS, INFORMATION AND TELECOMMUNICATION TECHNOLOGIES

TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES

Faculty Professional education in sphere ICT
Department "Information educational technologies"
Direction "Professional education: Informatics and information technologies"

CLAIM

Head of department
"Information educational technologies"
_____
« ___ »_____ 20 ___ y.

TASK

for final qualifying work of
Valiev A
(surname, name, second name)

On subject:
1. The subject was claimed with order of university «25» February 2014 y. № 1392-13
2. The deadline of delivery finished work 21.05.2014.
3.Raw data for work lecture, books, methodical applications, articles, web-sites, multimedia applications
4. The content of settlement and explanatory notes (list of the subjects, which are to be developed), abstract, introduction, Chapter 1, Chapter 2, Chapter 3, conclusion, list of references, the application
5. The list of graphics drawings, diagrams, tables, screenshots
6. The date of issue the task 25.02.2014.

Consultant _____
signature

Task taken _____
signature

7. Consultants of separated sections of the final qualification work

Name of the part	Consultant	Signature, the date of issue	
		Task given	Task received
TECHNICAL PART	Fayzullaeva B.N..		
PEDAGOGICAL PART	Risyukova Yu.V.		
SAFETY OF VITAL ACTIVITY	Kodirov F.M.		

8. Graph of the performing the work

№	Name of the part	Execution date	The signature of consultant
1	Theoretical base of pedagogical design		
2	The base of development electronic teaching program in “Moodle” system		
3	Safety of vital activity		

Graduate Valiev A.. «____»_____20 __ y._____

Consultant Risyukova Yu.V. «____»_____20 __ y. _____

Ushbu kvalifikatsiya ishida ishlab chiqarish metodikasi va electron o’rgatuvchi programmasini LMS Moodle sistemasiga kiritish tasvirlangan.

Misol tariqasida masofali o’qitish usuli korib chiqilmoqda, virtual ta’lim muhit ishlatilishi bilan. Bitiruvchi malakaviy kvalifikatsiya ishi tarkibi to’g’ri va talablarni keltirilgan holda ketma-ket tartibda tuzilgan.

Bitiruvchi malakaviy kvalifikatsiya ishi annotatsiyalardan,kirishdan, uchta bo’limdan va ishlatilgan adabiyotlar ro’yxatdan tashkil topgan,

***

В данной квалификационной работе описывается методика разработки и внедрения электронной обучающей программы в системе LMS Moodle. В качестве примера рассматривается метод дистанционного обучения с использованием виртуальной образовательной среды. Структура выпускной квалификационной работы выстроена грамотно и последовательно в соответствии с предъявляемыми требованиями.

Выпускная квалификационная работа состоит из аннотации, введения, трех глав и списка литературы.

***

In this paper we describe a methodology of development and implementation electron learning program with the usage methods of information - communication technologies on the base of educational virtual environment. As an example, consider a method of computer-based training with using a virtual learning environment LMS Moodle. The structure of final qualifying work is built correctly and follows to demand requirements.

Final qualifying work consists of abstract, introduction, three parts and list of used literature.

CONTENT

INTRODUCTION

Topicality. Speed of Uzbekistan's integration into the world economy growing depends on its ability to simultaneously get rid of the legacy left behind by the state socialism, and quickly upgrade the political institutions and governance mechanisms. In this regard, information and communication technology (ICT), being the main driving force for institutional reform to provide great opportunities for economic development.

Development of information and communication technology (ICT) is an important factor in raising the prosperity and economic growth, becoming one of the main priorities of the state policy in Uzbekistan.

Common vision of the development of ICT and the Internet in Uzbekistan reflected in President of the Republic of Uzbekistan at the session of the Parliament of the country in May 2001. In a large scale statement President urged the government to develop an overall strategy for the development of ICT in support of social , cultural and economic future of the country .

President's initiative was the signal for major strategic changes. Government is now clearly recognizes the importance of ICT to achieve their development goals . Therefore, in recent years the republic takes vigorous measures for the development and widespread adoption of ICT in various spheres of public and state-building.

In accordance with the Law "On Education of the Republic of Uzbekistan» operating phased implementation of the National Training Programme (NPPT). In addition, according to the document, Harvard University "Readiness world: Guide for Developing Countries" illiteracy in developing countries is a serious limitation to use computers and network resources. These two factors cause the need for continuous monitoring of education and human resources.

Education in ICT identified as one of the main priorities of the National Strategy as successful progress in this direction is a crucial factor for development in other priority areas.

For modern Uzbekistan accelerated modernization of educational technology is more urgent than for countries with developed market economies, since the potential of the national education system is currently performing basic social resource, providing a real opportunity innovative breakthrough to a higher level of economic development. Usage of information technology in teaching, corresponding to world level - the only possible way today onward development of our education system, and in the first place, high school.

Modern requirements dictated by economic and social reforms, led to a significant increase in resource- learning process.

To reduce the resource intensity of the educational process, to ensure greater availability of training in educational institutions, educational technology must be as effective as possible, that is, providing a high degree of efficiency of the educational process at a higher quality of education. Requires extensive use of innovative teaching methods and information, intensifying the educational process.

All this can be achieved widespread introduction in the educational process of modern information and communication technologies.

Aim of the study- to create e-learning program in Moodle and describe the techniques of its implementation.

Objectives of the study:

1. To make a theoretical analysis of the literature,
2. To study the methodology of the creation e-learning program;
3. To choose the software for creating e-learning program;
4. To describe the techniques of development and implementation e-learning program.

Subjects of the study: information and communication technology, interactive learning, computer technology, e-learning.

Practical significance.

Researched material can be used as a main or additional source of information, and can also serve as an auxiliary textbook for teachers of colleges and higher education institutions in their professional activities.

The structure of qualification work:

This qualification work consists of abstract, introduction, three chapters, conclusion, list of used literature, appendix.

Also qualification work has visual material: tables and screenshots.

PART I. THEORETICAL BASE OF PEDAGOGICAL DESIGN

1.1 The technology of organization of project activities

Pedagogical design as a kind of project activities is reflected in the complex system of knowledge, the content of which is determined by its specific characteristics and role in public life. These features of social engineering can be defined on the basis of consideration in the context of social management includes it along with other management activities. In social management instructional design can be isolated and considered as a special management and transforming activity, providing: the formation of an ideal environmental transformation of social reality; correlation with this reality emerged ideal; creation of semantic generality of real and ideal; semiotic objectification of this community.

Generalizing these specific properties in a single conceptual representation can be defined as social engineering. Instructional Design - a special kind of project activities associated with the transformation of the surrounding social reality according to some ideal by creating expressed in symbolic form and focused on the implementation of semantic generality of the real and the ideal, which is called a social project.

This definition seems to allow the project to identify the presence of the functions of social management and control function of social engineering , which are manifested in the fact that any management decisions aimed at changing reality always requires consideration of the ideal of this change , and design solution always provides transformative change reality according to the ideal.

Sphere of social control with a built in her social design has effective influence on pedagogical development of society. This development is provided by the solutions arising in the social life of various design situations related to the creation of new or reorganization of existing activities, which in itself and determines the direction of the entire social development that can be progressive or regressive.

On the basis of the social order of society, the requirements of

modernization of education and problems of the experimental work of the school, the question arose: «How to organize the activities of all participants in the educational process in the school mode experiment? ". Innovative new agents has led us to understand that the construction of the educational process , based on needs, abilities and capabilities of all actors, we need activity-related, group, play, role, practice-oriented, problem, reflexive and other forms and methods of teaching. Among the various areas of modern techniques and technologies most appropriate method is to set goals projects.

Project is the method of learning that promotes independent thinking, which helps the child to generate confidence in their own abilities. It provides for a system of education where children acquire knowledge and master skills in the implementation of planned practical tasks. This learning through exploration and cognitive activity, which is aimed at a result which is obtained by solving a certain problem. Method allows projects to educate independent and responsible personality, develops creativity and mental abilities, and promotes commitment, perseverance, teaches to overcome problems encountered along the way, and most importantly the ability to communicate with peers and adults, enhances the credibility of the child in front of their peers and their self-esteem. At the heart of each project is any problem. After project themes are born exactly the interests of children. Method for projects characterized by a group activity.

Thus, the method becomes a way of organizing projects pedagogical process , the main on the interaction of the teacher , parents and pupils of each other and the environment.

What are the advantages of the project? It gives you the opportunity to organize training activities , keeping a reasonable balance between theory and practice ; successfully integrated into the educational process ; provides not only an intellectual but also moral development of student, their independence and activity ; allows students to acquire experience in social interaction , unites student develop the communication .

The project is not valuable learning results, and the process itself .

The basis of the project activity is the development of cognitive skills , skills to independently design their knowledge to navigate in the information space , the development of critical and creative thinking , the ability to see , to formulate and solve the problem.

Project - a creative solution for educational and practical tasks , independent performance of creative works - the creation of their own works , ideal or real models of objects, processes and phenomena , including the use of multimedia technologies.

- ✓ Can learn from their experience and that of others in a particular case .
- ✓ Allows to combine passive accumulation process focus pupil amounts of knowledge to master them in different ways in terms of activity accessibility of information resources , which contributes to the formation of active creative personality , able to solve problems in non-traditional non-standard conditions .
- ✓ Project method allows a differentiated approach to teaching student.
- ✓ Is the development of skills: research, reflective, self-assessment. (group work - not to bring a friend, rivalries - who is better?)
- ✓ Skills directly associated with the experience of their application in practice.
- ✓ Method of training projects acts as a possible means of solving urgent problems :

1. Students often do not know how to turn information into knowledge , to carry out a targeted search of information , abundance of information does not lead to systematic knowledge;

2 . Lack student interest motive for personal growth , for independent acquisition of new knowledge ;

3 . Leading type of activity, develop students - reproductive, reproducing, knowledge divorced from life.

Project - it literally "thrown forward ", ii means the prototype, the prototype of an object, activity. Project method is a " way of learning through doing " when

the student is directly included in the active learning process itself formulate a training problem, collects the necessary information, planning solutions to the problem , making conclusions , analyzes their activities , training and gaining experience.

What are requirements to teachers?

· The ability to see and select the most interesting and practically relevant topics projects;

· Possession of the entire arsenal of research, search methods, the ability to organize research independent work of students;

· Possession of art communication, which provides the ability to organize and lead a discussion without imposing their point of view, is not pressing on the audience with his authority;

· Ability to establish and maintain a stable group project a positive emotional state ;

· Possession of computer literacy;

· Ability to integrate knowledge from different fields to solve the problems of the selected projects.

Students are required to:

· Knowledge and possession of basic research methods (analysis of literature search of information sources, data collection and processing, scientific explanation of the results, and to propose new vision problems);

· Possession of computer literacy , which involves : the ability to enter and edit information, process to obtain quantitative data using spreadsheet programs , use of databases, print out information on the printer ;

· Ability to independently integrate previously acquired knowledge in different subjects to solve cognitive tasks.

The results of the projects must be material, decorated in any way:

- Movie;
- Album;
- Logbook "Journey"

- Computer newspaper;
- Almanac;
- Report;
- Exposé;
- A set of cards;
- Tablet;
- Poster;
- Instructions etc.

Stages of project implementation

1. Undertaking (definition of the subject objectives, starting position , the formation of working groups)

2. Planning - analysis of a problem, task update information, synthesis of ideas , plans.

3. Decision-making - "brainstorming", discussion of alternatives, the choice of the optimal variant.

4. Activities

5. Testing and Evaluation - Analysis of the project, determine the causes of successes and failures.

6. Protection Project - a collective analysis of the activity.

Teacher at all stages acts as a consultant and assistant and training emphasis is not on the content of teaching and the process of applying existing knowledge.

System design work encompasses both the appointed and extracurricular activities.

For the formation of project uses two kinds of skills the appointed lessons.

The first kind - Project lesson that consists entirely of work on the project. Are designated school hours, which may not be much due to high costs of the project. Optimal use of these lessons 1-2 times a year on a particular topic. (Integrated lesson - example Arts and Literature. Disassemble theme in the 5th grade «humor in literary works and the works of artists," the teacher summed student to understand what art means writers and artists were able to express their

attitude to the irony, to laughter . Outcome lesson is a task for the student - write your story and draw a graphic to it - this project).

The second type - a lesson that can be used on projects carried out by individual students or groups of students after school for some topics of subject content or cross-curricular projects. At these classes, students will present their project. Presentation - an important skill that develops speech, associative thinking, reflection. Students are accustomed to the fact that as soon set a goal to distribute tasks, performed the work, tell me what happened, concluded advertise their work.

Each project - it works, it's personal knowledge. He will talk about his creator much informed than faceless score. In elementary school, grades 1-4 design activities carried out in the classroom, on the free independent work outside normal working hours. Practice Projects entire class to an issue, projects executed together with the parents, individual projects. In elementary school grades 5-9 projects often are creative. Method of projects at this stage gives you the opportunity to gain experience on their own, and the experience for the student becomes the driving force, which determines the direction of further intellectual and social development of the individual. Feature projects at the senior level of education 10-11 class is their research and applied character.

The priority areas of education today are modern educational technology, computerization of education, social education adapted personality. All these areas could not be better correlated with school theme: "Improving the conditions for self-determination and self-realization in the adaptive school: acmeological approach." To social identity was adapted, had modern ICT was able to obtain information on their own, had design skills at school in the system should be carried out work on the formation of research and design technology.

• Project-based learning is an old one.

The founder of the project method - American philosopher - a pragmatist Dyun J. (1859 - 1952). Use of the projects in the school meets all the requirements of modern education :

• problematization of educational material ;

• cognitive activity of the child;

• liaison with learning experiences of the child;

• organization of training activities as (fiction, employment)

There are many classifications of projects:

• The method dominant in the project

(research, creative , role , play , familiarization oriented (information);

practice-oriented (applied) .

• Subject- content region (monoprojects and interdisciplinary)

• The nature of the contacts

(regional, international , network , etc.)

• Number of participants in the project (individual and group)

• The duration of the project and its character (short-term, medium- length, long-term).

The use of projects in teaching activities maybe if the teacher is ready to changing social roles: the teacher becomes a partner and coordinator if the student has mastered the basic subject knowledge, and if teacher and student are willing to research and own ICT.

1.2 Classification of projects and their principles

From the standpoint of the competence approach as a result of training and education should be formed following competencies:

Value-sense - to be able to select target and semantic systems for their actions and deeds, to make decisions.

Educational and cognitive - a willingness to self- learning activities, its self-esteem. Information - the willingness to self- searching, analysis, selection and evaluation of the necessary information from a variety of sources; ability to independently develop the knowledge and skills necessary to solve the problem .

Communicative - a willingness to receive the necessary information in the dialog, present and civilized to defend their position in public speaking; skills in the group.

Problem-solving competence - the ability to analyze unusual situations; be able to make a responsible decision in a given situation and to ensure their actions embodied in his life.

Personality - willingness to physical, spiritual and intellectual self-development, self-regulation and self-help emotional as the most common modes of action developed that enable a person to understand the situation, to achieve results in their personal and professional lives.

In order to generate and maintain key competencies in students an interest in the subject of science and ICT, we have a need to build training and education for active basis. Priority in this respect belongs to design a research method. And use it in the classroom , in after-hour and in extracurricular activities. For the formation of individual competency necessary to include it in the cognitive learning activities and extracurricular activities.

Design and research activities on science lessons aimed at the formation of educational-cognitive and information competence because creates a whole image of the students of knowledge, increases the motivation of students to obtain additional knowledge, generates scientific knowledge. The work program for each class of envisaging the number of hours on the project activities. From the standpoint of teaching and research skills, practice the following types of lessons.

Lesson - mini-project. Students do not get "ready» information, and search for it in varying degrees independently. Search Result answer to the problem question takes the form of a mini- project that was created in the programming environment or application.

Lesson - practical work . At the lesson, students undertake a case study in the programming environment or application, and further - the task of a creative nature . This can be a situation modeling, experiment or study in another subject area. The structure of educational research in the classroom corresponds to the logic of scientific research. The teacher poses a problem creates a problematic situation, provides students with the necessary factual material, supervises their activities. Students make discoveries. An example of research activities in the

classroom can serve as a modeling work situations in spreadsheets. In this research work, «predator and prey " should do the job : "According to the number of wolves and elk plan catching predators to keep the population of elk and not to disturb the ecological environment.

Lesson - business game. The lesson is based on the simulation of the activities of institutions and organizations: the hospital , school, library, company selling computers , etc. Designing for such lessons are usually associated with the study spreadsheet application or database MS Access.

Lesson - virtual tour. At the lesson, students are projects completed as homework ; protect and give expert evaluation of the their comrades. Project can be " virtual museum", "excursion into history ", " virtual tour ", etc.

Lesson workshop. Lessons - Workshops spend in the study of algorithms and programming . Lessons on problem solving, modeling processes or phenomena of other subjects or of life. For example, to create a project "Movement of the ball thrown at an angle to the horizon ," etc.

Lesson - protection projects – this kind of lessons corrections knowledge and skills. Lessons are held as protection projects completion lessons learning topics. In the form of protection project conveniently organize repetition, especially generalizing repetition at the end of the school year.

Design and research activities after school aims to meet the individual educational interests, needs and aptitudes of the students; to create conditions for self-determination and self-expression. In the process of individual and collective work on projects formed educational and cognitive, communicative, information competence and problem-solving competence.

Structural elements of the design and research of extracurricular activities are:

• Job specific programs. Were developed and implemented in the educational process of the program of specialized programs:

"Olympiad training" - was organized for students of physical and mathematical specialized classes for the purpose of in-depth study of algorithms and programming , and training for Olympiads in Informatics and Programming ;

"Using applications in the design and research activities of students." The classes of this program introduces students to professional programs Visual Basic, Delphi, Adobe Flash, learn to design and create training programs for school subjects ;

Formation of value-semantic competence promotes student involvement in the design and research activities of social orientation, in particular, the work on the formation and development of the class group. Problem by creating favorable psycho-pedagogical conditions for development and moral formation of the personality of each child's self-affirmation , preservation and disclosure of originality of its potential to be successfully addressed if its decision engaged together students , teachers and parents . Therefore involve children and their parents in the joint design and research activities. Together with students and parents , we have created a class blog , which has become , first, a chronicle of the class and the general affairs of a piggy bank ; secondly, the place where you can express your opinion , to report on their success or talk about an important event, to discuss the problem , share my soul and get advice, and work on joint projects .

Results of special programs are student participation in competitions, contests and scientific conferences on computer science; they created using textbooks in school education process.

• Conduct training experiments and research practice.

Things pilot activities - is the fulfillment of creative assignments on specific topics not related to the educational process. To perform the experiment creates temporary groups of students. They identify the problems of school or social life, find ways to solve them, collect and process data. The results presented in the form of the project, implemented with the help of computer technology. Ready software is sent on an assignment: to cool and parent meetings , thematic extracurricular activities . This form of learning activity combines academic research work on the

collective discussion of intermediate and final results of this work involves the organization of round table discussions , conferences , public protection , as well as a meeting with representatives of science and education , cooperation with pupillary research societies of other educational institutions .

Project activities in extracurricular activities . In education, learning can not be separated from education. Design-research activities build students' personal competence , brings significant human values such as a sense of responsibility and self-discipline , the ability to self-organize , the desire to do their job.

Student engaged in design and research activities capable of transferring research approach to different sectors of activity and apply in different situations.

Main types of project activities	
1	Informative
2	Communicative
3	Presentational
4	analytical
5	Searching

Table 1. Types of project activities

Unique means of ensuring cooperation, co-creation of students and adults , way to implement learner - centered approach to education is a project activity . At the heart of which lies the creativity, ability to navigate in the information space , independently design their knowledge and idea about the direction of the cognitive activity of preschool students on the project activity is also a means of self-expression and self-realization of the student.

The project - a specially organized educator and students operated independently set of actions culminating in the creation of creative works (means product). A project is interpreted individually or collectively, creative work completed, having a socially significant result.

The main purpose of the project activity in the kindergarten is to develop free and creative personality of the student

In the project activity the student has the opportunity to participate in the discussion of the project , to present (present the product of its activity) , select a specific type of activity .

Implementation of the project in preschool educational institution begins with the definition (formulation) for preschoolers actual problem. The teacher prepares a preliminary plan to resolve the problem. Students in the program of the project make suggestions . Thus, students are the true subject of educational activities

The theme for the project is initiated by a teacher given the interest of students, their age features it provides motivation to work. At the morning assembly we organize a discussion in the form of dialogue, to identify what students know about a particular object or phenomenon, and determine the amount based on the possibility of an educator.

Project Life Cycle includes the following Phases and activities:

A. Study Phase

1. User Need
2. Initial Investigation
3. User Review
4. System Performance Design
5. Candidate Review
6. Study Phase Report

B. Design Phase

1. General System Review
2. Processing Requirements Identification
3. Data Base Design

4. Control Requirements
5. Output Design
6. Input Design
7. Software Selection
8. Equipment Selection/Acquisition
9. People
10. Reference Manual Identification
11. Plans
12. Design Specifications Preparation
13. Design Phase Report Preparation

C. Development Phase

1. Implementation Planning
2. Computer Program Design
3. User Review
4. Equipment Acquisition and Installation
5. Coding and Debugging
6. Computer Program Testing
7. System Testing
8. Reference Manual Preparation
9. Personnel Training
10. Changeover Plan Preparation
11. Development Phase Report Preparation
12. User Acceptance Review

D. Operation Phase

1. System Changeover
2. Routine Operation
3. System Performance Evaluation

4. System Changes/Enhancements

The present stage of development of society characterized by an increase requirements for the development of personality. One of the tasks of priority to the formation of a young man with an unusual critical thinking, the ability to search for informed decisions based on independent study of the world. Such people will determine the success of our country in the future. The constant increase of knowledge , rapid obsolescence of existing information , the need to be guided in a growing stream information make us look for a source of new knowledge directly within the educational system and educational processes . such a source can become a training practice , project work , research activities of students . In this approach, learning is not recognized set of information assimilated undergraduates than reproductive rate , and its " knowledge of ignorance . " Unconditional priority over the knowledge given to understanding (before total understanding of "what and why you're doing "), with regard understood own personal experiences.

In this regard, the main objective of the program : the formation of thinking, understanding undergraduates develop the ability to orient himself in the rapidly changing world , to find its place in it . In addition , the program has a purely pragmatic purpose : to give students an idea of the design, research activities.

Pedagogical appropriateness of the program is that design encourages students to ensure that in the future they become responsible citizens actively participate in the political life state.

The objectives of development disciplines (modules) "Managing the project activities in education " are the formation of common cultural and professional competencies required for implementation professional activities help students through a system of knowledge about Fundamentals of project activities, the acquisition of skills in management, allowing them to build effective teaching professional activities .

The objectives of pedagogical design:

 assimilate the knowledge base on the theoretical foundations of the project activity the training and education of students;

 develop a system of scientific knowledge on a set of principles , methods, organizational forms of project activities;

 master the skills and abilities of pedagogical design;

 form design skills educational environment for designing educational content educational and educational process.

1.3 Foundations and objectives of the e-learning program

E-learning program - is a computer software tool comprising a systematic exposition of the discipline or her section of the corresponding curriculum usually includes questions and tasks for self-control and examination, as well as providing feedback.

Learning experience with the help of e-learning program found in it many strengths. Significantly increase the data capacity of learning. In the unit time is now absorbed by 60-70 % more useful information and, in some cases, this figure rises to 80-100 %. Its main advantage compared with the embodiment of the paper (the book)

- Interactivity and dynamism of perception;
- The formation of non-linear path of learning (adaptive to the needs and capabilities of a particular student);
- New forms of information (including not only text but also graphics, animation, sound and video clips);
- A significantly larger amount of useful information (e-library ; Internet);
- Fast, easy and intuitive to find information;
- New forms of learning through the use of an animated character - this is not a computer, but not yet a man.

The proposed e-learning program is an application that functions in the operating environment of Windows. It is based on the use of MDI when the window containing information located inside the main window. In this case the

user is given the option of using bookmarks system to move from one window to another.

E-learning program - a broad concept. So wide that even narrowing it down to the concept of " e-learning program ," common practice in e-Learning, does not clearly accents . The first time I thought about it during the debate with my colleagues involved in developing e-learning programs for corporate clients. It turned out that when talking about the same, we take this different things.

There are other types of e-learning programs, such as programs to support intramural and extramural training programs, a wide profile for commercial sale on CD / DVD, programs from vendors such as " Photoshop Basics ", etc. All content is completely different , being built every time by their own laws and living their own lives.

Describe the features of each type of development would be useful and fun , but probably not a task of one article , but several , and bring to writing these articles need specialists in every genre .

Feature 1. Volumes

E-program to fully by the State educational standards (Member) cover semester academic disciplines must have a volume of about 10 text part of a copyright or sheets (including additional materials , tests, glossary , etc.) - about 0.5 million characters . If the university seeks full coverage of all electronic content of the educational process, then this means that you need to cover 300-500 disciplines in a small high school or 1000 or more disciplines - in a classical university.

This means only the amount of the original work - about 5 thousand sheets of copyright, which is more than 86 -volume Britannica Ephron. And it is for a small university. Good problem for mediocre classical publishing, is not it?

Hence, the first conclusion: those who engaged in the development of electronic content in high school , must understand that they have to organize a real publishing process - all the rules , with a clear separation of business processes with the process stream . Otherwise, they will drown in the streams and not be able

to perform the task.

Feature 2: time

Time change gosov - 5 years. During the change of standards varies 30-50% of subjects in each specialty. And at a time when changing common approaches , such as now, in the transition from the " specialties " to the " Bachelor - Master ' degree of turnover may be even higher . Add to this the natural aging program materials and the rapid obsolescence of electronic publishing technologies and interfaces.

Thus, the first item, you can add the following thesis : your electronic publishing - is not just a " one off event ", is here to stay , ie for the entire period when the university expects to engage in e-learning .

Feature 3: budget

Needless to say that the e-learning program development budget in the bank or , for example, in a large telecommunications company and the university are different. Although a large prestigious university could not afford to create several e-learning programs with the budget of the banking sector , but if it is done - just to show that "we also know how ." At the same volume , which said in part 1 , to keep the budget of the corporate sector is simply unrealistic.

Conclusion: we must learn to do the same thing and corporate developers, but much cheaper. Or - to do otherwise.

Unfortunately, the "different" - is often interpreted as "is not as good." Developers often fill up the author's text in the designer programs by elementary copy - paste and consider its mission accomplished (" what you want in this budget "), and sometimes even convert text to PDF and proudly called "e- program." Well even if the text is subject to proofreading and editing procedures, and that in fact often the cause is just raw.

Such decisions can not be called acceptable, and their results - worthy of mention in the context of e-Learning.

Feature 4 : Learning Objectives

On the one hand , the first and immediate goal of any education is to transfer

the student to specific knowledge , and skills development . I deliberately talking here about the immediate goal , because purpose indirect or "end " may be quite different , different to such an extent that they no comparison is possible .

Thus, knowledge and skills . However, much depends on what is knowledge , what skills and what skills . Knowledge of the alphabet - this one, and the knowledge of theoretical physics - more. Ability to sell a product or service - one, and the ability to solve systems of differential equations - different. In each case, present their teaching methods and their approach to electronic content (its form, structure , feed) .

Well, if we talk by and large, have training in high school has its most important task - getting a student in higher education. Traditionally, the Russian language under the form understand the formation of the acquired knowledge into a coherent structure (the image) , which has its own value. There is even such a paradoxical definition: higher education - is what remains when the knowledge forgotten.

Should take into account the above e-program? In my opinion, should, but this - below.

Feature 5 : didactics

Here we touch the field, only partially related to electronic content. Didactics of e-learning tasks affect the development of e-content, but are not limited to this area.

1.4 The structure of e-learning program

There is another approach, which we adhere to in their electronic programs. This approach to the structure of the program as a network structure. The basic idea of this approach is that the traditional hierarchical structure (Fig. 1) is not the only way to target students - mastering the program material. Moreover, not always the best. The structure of the "theme - thesis - *sub thesis*" is replaced by structure "network theses" (Fig. 2) or a "network of semantic units" (Fig. 3).

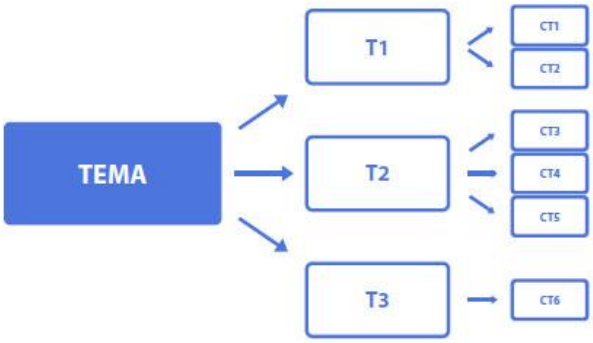


Fig. 1. Hierarchical structure of the program (T - thesis, CT – sub thesis)

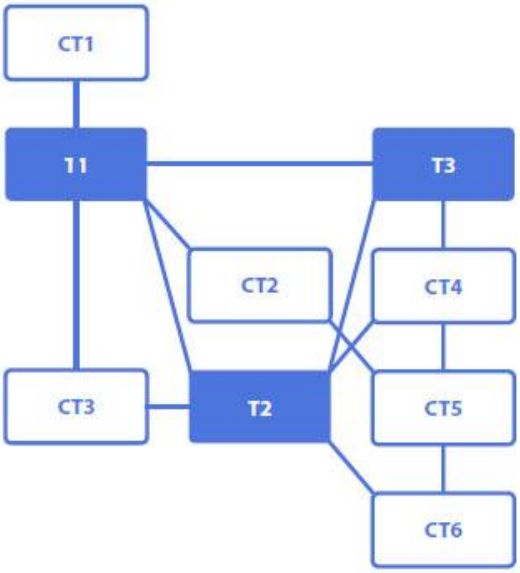


Fig. 2. Network theses (T - thesis, CT - sub thesis)

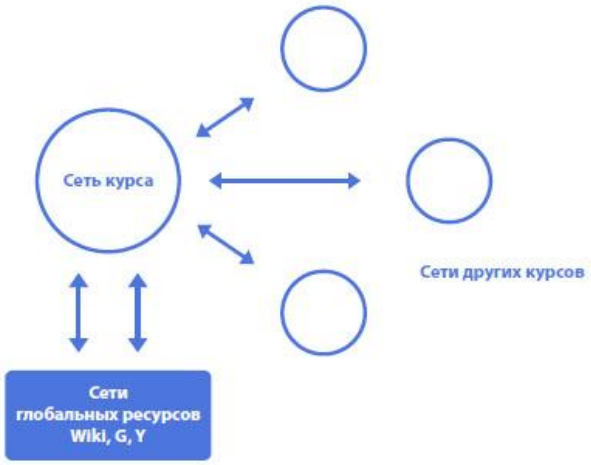


Fig. 3. Program structure with open content

In this structure, one can think of any number of hierarchies, arbitrarily assigning the desired root node and tearing unnecessary communication. This

structure can easily become open (Fig. 3) , incorporating into other networks - network library other electronic programs and network external knowledge resources - such as Wikipedia , mapping services , and other general and specialized encyclopedias Internet resources.

Perhaps the didactic value of this model of building content many seem controversial because of its redundancy and amorphous . But we have a deep conviction that the birth of a new integrity in the student's mind , this is not a transfer of the integrity of the program 's head through the program structure corresponding to that wholeness. This process is more complex , it corresponds to the qualitative transition associated with the assimilation of the facts of the links between the various theses and semantic units of the program.

Presentation of the program in the form of abstracts of the network structure - a feature of university educational content . Despite the fact that this idea refers to the process of cognitive activity in general, it is unlikely it can be used as such in corporate training , where necessary not so much understanding of how much function.

E-learning program - an educational electronic edition or resource to support the learning process in institutions of general , special and vocational education , as well as for self-education through training programs , including those aimed at continuing education . E-LEARNING PROGRAM lets you perform all the basic functions of electronic methodical editions :

- ✓ reference and information ;
- ✓ control ;
- ✓ functions of the simulator ;
- ✓ simulation ;
- ✓ modeling ;
- ✓ demonstration .

From the perspective of information and communication technologies E-LEARNING PROGRAM - an information system (software implementation), multi-purpose , providing through a single computer program , without reprogram

to paper storage media , the implementation of didactic possibilities of ICT at all levels of didactic learning process cycle :

- ✓ posing a cognitive task ;
- ✓ presentation of the content of educational material;
- ✓ organization of primary application of acquired knowledge (organization of activities to implement the individual tasks , which results in the formation of scientific knowledge);
- ✓ feedback control of the activities of students;
- ✓ organization prepare for further training activities (job reference for self-education, to read additional literature) .

E-learning program while ensuring the continuity and completeness of didactic learning process cycle , provides the theoretical material , organizes training activities and control the level of knowledge , information retrieval activities , mathematical modeling and simulation with computer visualization and service functions.

PART II. THE BASE OF DEVELOPMENT ELECTRONIC LEARNING PROGRAM IN "MOODLE" SYSTEM

2.1 Main features of the technology of computer training

In general, the use of computers need to facilitate the learning process. In fact, computer-based training system - only one (albeit the most technologically advanced) of pedagogical developments that have been made in recent years by the development of theories of learning. For example, see programmable training

By the phrase computer training can be understood as different values:

- ✓ training people using computers
- ✓ programmed instruction - teaching methodology on some algorithm (not necessarily using a computer)
- ✓ learning artificial intelligence
- ✓ training informatics (computer programs)

By learning tools include visual aids, teaching aids , teaching materials , etc. Recently changed substantially learning tool. Due to the advent of personal computers , a new kind of problem-based learning process - problem- computer training . A new element (computer) in the pedagogical system can largely change its function and achieve a new pedagogical effect.

As with the introduction of any other learning tools, there are several problems associated with psychological and pedagogical conditions for the use of computers in the learning process . At the same time, the computer gives information such opportunities of the educational process , which until now has never been. There is a serious multi-faceted problem of choosing an implementation strategy in computer training that would use all of its advantages and avoid losses , affecting the quality of the pedagogical process and affecting the development of the main areas of human rights. So before you start designing the educational process with the use of computers , the teacher must know the teaching methods with the use of a computer. Therefore legitimately raise the issue of new learning technologies , which would give advantages to compensate for the cost of

the acquisition and mastery of computer skills to work with her. This requires a fundamentally new search promising solutions using the computer as an effective learning tool.

Analysis of scientific knowledge allows you to organize and highlight the following features of the computer in teaching :

- Technical and pedagogical (educational and control programs , the diagnostic modeling , expert , dialog , advising , settlement and logical);

- Didactic (computer as a trainer , as a tutor , as an assistant , as a device that simulates certain situations , the computer as a means of intensification of training activities, optimization of the teacher , the computer as a means of carrying out functions: rapid updating of educational information , obtain immediate information about the individual characteristics of students , as a means of adjusting the computer , monitor and evaluate their activities , and stimulate its activation) .

Task of pedagogy in this regard is to identify and provide the conditions under which certain functions really achieved . In practice, these conditions are detected or not , or are not used , so the functions of a computer is often implemented on a primitive (in the pedagogical aspect) level. What are these conditions ?

Without pretending to absolute fullness , call the following :

- Interconnection of computer application and objectives, content , forms and methods of training;

- A combination of the words of the teacher and the use of computers ;

- Didactic structure of computer classes ;

- Motivation is computer classes ;

- A combination of computer and other technical means .

Disentangling these conditions it is necessary to find a reasonable , informed didactic correspondence between the logic and the logic of computer deployment training activities. Currently second logic sacrificed first , so computerization training does not give proper pedagogical effect. Installation in the classroom or

university audience computer computerization has not ending , but the beginning of computer training . Let us consider the conditions.

Computer relationship with the major components of the pedagogical process .

It is important to reveal the usefulness of the computer and its compatibility with the content, forms and methods of teaching. For what purpose, use a computer? At this stage the use of computer-based training are highlighted in the following objectives:

- By the time factor : the gain in time when monitoring and diagnosing students , winning the replication and presentation control and independent student work , analysis of the results and their prompt delivery to each student and the like;

- By raising " coverage " of students in the learning process : the ability to mass update training on stage supporting knowledge and methods of action , working out at the stage of the reproductive abilities and skills;

- For the implementation of an individual approach to students that everyone is working with the computer according to its tempo and opportunities;

- By raising " mechanization" pedagogical operations intensification of student work in the preparation of laboratory and practical work , work computer in the simulator , tutor , working with computer over the lecture material for laboratory and practical classes .

In the present list of goals can be seen that using only one side of computer training - programmed instruction , but only in a more refined technique . The practice of using programming systems confirms the validity of this set of goals for solving the problem of formation of practical skills . But technology programmed instruction , essentially duplicating traditional teaching methods : optimizing operational and regulatory components of the management of student , they greatly impoverish and even destroy its other components (intellectual, motivational, emotional) . Therefore, the use of programmed instruction purposes necessary but not sufficient : it is sufficient only in a narrow range of teaching situations

associated with the formation of skills , but totally inadequate in situations of major areas of development rights.

What are its disadvantages? It involves a significant relief of the teacher , but is aimed at developing the student as a subject of activity , since in this case stays out of trouble analysis of educational activity . With this in mind, the main strategic lines of psycho- pedagogical support computer training becomes justification integrated systems training activities, preserving and using the computer all the possibilities for the formation and development of the main areas of human rights. In other words , it is necessary nomenclature purposes , taking into account the new educational concepts of personality-oriented training and individual activity approach . It follows that the above range of objectives should be supplemented as follows:

- The development of the intellectual sphere : the development of thinking (cognitive, creative) , memory, attention, mental qualities (intelligence, flexibility , efficiency , independence) , thinking skills (extraction, collation , analysis , etc.) , cognitive skills (see the contradiction problem, raise questions , hypotheses , etc.) , the ability to learn , the formation of subject knowledge and skills ;

- Development of the motivational sphere : the formation of needs - intellectual , knowledge , the knowledge of nature, society , human patterns of thinking and cognition ; needs in mastering ways of knowing and transforming activity ; education motives for learning (cognitive interests , meaning the study of the subject , etc.) , motives and achievements , etc.;

- The development of the emotional sphere : the formation of the necessary skills to manage their feelings and emotional states , overcoming excessive anxiety, adequate self- education ;

- Development of volitional : the formation of purpose and ability to overcome muscle and nerve tension, development initiatives , self-confidence , develop self-control , learning to know - how to act, how to plan activities , and how to implement it to monitor unaided.

- Formation of learning activities in general and its main components : management attention of students, explaining to them the meaning of upcoming activities , updating the necessary need- motivational states , encouraging goal setting , creating the conditions for the successful implementation of students performing actions , assistance and compensation activities , evaluation process and outcome learning activities of students .

Consider the compatibility of the computer with the content, forms and methods of teaching. Experience the national high and high school , as well as the experience of foreign schools, shows that the use of computers in any subject almost no restrictions. But the content of computer classes must necessarily include information about how to analyze the conditions of the problem , the search for ways to solve it , about how to control the correctness of the decision. That is, the contents must include data on all types of reflection - intellectual , personal and interpersonal : consider how students understand the logic of computer training , meaning requirements etc.

Computer application should take into account the existing forms of learning. Modern forms of learning , regardless of the type of school have the following invariant structure :

- Updated support of knowledge and modes of action;
- The formation of new concepts and modes of action;
- The application of knowledge, skills formation.

As combined with dedicated computer steps? Much depends on the specifics of the subject: it is very difficult to formalize knowledge in the humanities (although this temporary difficulty), it is also difficult using a computer to develop creative thinking. Therefore, the second stage of training (formation of new concepts and modes of action) often held traditional (verbal) methods. The first and third stages, as experience shows the use of computers in the learning process and our research, quite amenable to computerization.

At the stage of updating the computer can fill in the missing students' knowledge no matter for what reason they have it available, will help him to

remember the support necessary knowledge and methods of action. The teacher can also acquire information about the level of actualization of knowledge for all students. All this creates certain prerequisites of success in other stages of training .

When applying computer training can fully immerse students in independent activities.

The above structure of the classes is called didactic structure. Along with it, there is the psychological structure of classes. For computer training, we propose the following structure:

- Management of the students' attention in class: their inclusion in the activities at the beginning of the lesson, the organization of attention when changing activities, maintenance of involuntary and voluntary attention on the required time ;

- Disclosure sense upcoming activities: each student himself needed to understand the meaning of the forthcoming activities. Only then will he have a desire to do something, only then it will enter into active. To do this, the student must obtain information about the subject needs, allowing him a clear idea of what knowledge he needs to learn what methods to master what to do and why it is needed;

- Updated motivational states: the student under the influence of pedagogical influences realizes his motives and acts impelled significant motive in this situation;

- Joint goal-setting with students: the formulation of the problem, objectives, future activities;

- Formation of a system of learning activities (planning, orientation in the activity, performance);

- Formation of ways to control your actions;

- Formation of self-esteem, to the process and results of operations.

As shown above the psychological structure of computer classes to implement in practice? Consider the scenario of invariant model of computer classes.

The first two phases of the psychological structure creates high personal interest of students using the information entered on a computer monitor:

- Information about the necessity doctrine, importance of knowledge;

- Information on the relevance and practical significance of the training program, impose a computer;

- Information to help you tune in to work, focus;

- Information on the self- tuning and development of cognitive interest;

- Information explaining the importance and relevance of the topic chosen study;

- Information explaining that the training program has special tools to help overcome the difficulties;

- Approvingly information about the correct attitude to student education, the need to rush to new knowledge;

- Approvingly information about choosing the right profession (specialty), the importance of learning rational methods of learning;

- Information explaining that the training program includes tools that promote initiative and willpower.

At the third stage using a computer is introduced:

- Information about where to really benefit derived knowledge;

- Information that highlights the issues that demonstrate certain techniques of training activities;

- Information that explains how in case of difficulty seek help choose what kind of help;

- The information required to exercise maximum independence in performing tasks;

- Information, emphasizing that the situation in developing the ability to set goals of training activities;

- Information explaining that in case of difficulty will be given additional information raises the question of helping to solve the problems under consideration;

- Information, emphasizing that the solution of these problems will contribute to the formation of certain skills;

- Information, emphasizing that the actions carried out by trained, form skills training and professional activities;

- Information explaining that in case of difficulty, support will be given a job or algorithmic requirements.

In the fourth stage, the students conscious choice goals, choice of solutions, how to act. At this stage, the creation of individual installations to carry out activities. Computer capabilities are limited here, and this step is better done in the live communication between the teacher and learners.

In the final stages of the psychological structure of computer classes will again be able to use a computer and to enable students to select the type of assistance. In case of difficulty offer additional questions or information, learning objectives, algorithmic requirements. The central task of the teacher in these stages is using a computer simulation of individual activities of the students. We present a scenario of differentiated support teaching operations.

Students presented the task; in case of difficulty tutorial provides: - "help select" : 1) clue 2) the correct answer without explanation , 3) the correct answer with an explanation ;

- "Do I need help? " : 1) try to answer again ; 2) fix the error ; 3) the correct answer with an explanation ;

- Assistance in the form of a friendly with increasing degree of clues leading eventually to the correct answer;

- Indication of the cause of trouble: common reason, the typical cause, other Additional information that forces the student to think about what he should strive to find the right solution;

- Additional questions like "What is given? ", "What do you need to find ";

- Supporting teaching tasks problematic issues that will help determine the principle of solving the basic problem;

- Perform algorithmic requirements;

- Motivational guidance, additional guidance .

Thus, the model of computer classes must be multifaceted and multifunctional : form not only knowledge , but also to develop students , involve them in the scope of diverse mental activity. On this basis that the development of intelligence, motivation, will, etc. Therefore, the model of computer classes must also be procedural. Process - it is not only the change, but also a number of genetically successive developmental stages corresponding to the stages of computer training. The model must also meet the criteria of contradictory and problematic, variability and flexibility.

As already noted, the computer does not involve occupation hundred percent use of his time to work with your computer. It is therefore necessary to consider the problem of combining the words teacher and computer use. You can select multiple forms of this combination:

1) directs the work of the teacher trainees with computer knowledge about the object of study, they extract themselves;

2) knowledge of the object of study the student receives from the teacher and the computer serves as a confirmation or a specialization of verbal messages;

3) on the basis of work with a computer, students carried out, the teacher decides with them learning problems ;

4) based on the information stored in the computer , the teacher decides the problem (and its solution shows) monologic method.

Depending on the combination of computer forms considered activity can be carried out by different methods of learning:

- Algorithmic and research methods at the earliest form of a combination.

2.2 The role of software in the creation of e-learning programs

The word Moodle - actually acronym for: Module object-Oriented Dynamic Learning Environment (Modular Object-Oriented Dynamic Learning shell) at the beginning of the letter «M» stands for «Martin», named creator shell Martin Dougiamas.

Distance learning system «Moodle» contains a wide range of tools for the creation, improvement and maintenance of the course and its effectiveness. In her every teacher has the opportunity to choose for their discipline necessary for him tools for organizing the learning process.)

In the educational process college this shell is used as a

The main features of Moodle are:

Moodle provides educators opportunities to deploy and update training and methodological support of the educational course, tools for remote counseling students through forums , enabling regular monitoring of students by reviewing the statistics of visits and work with LMS . For admission control and coursework to check widely used element of the course "Setting " to which students attach files with the oversight or coursework . Testing System LMS Moodle provides clarity of presentation of the test results , the possibility of formation of summary reports , comparison of outcomes , the use of graphical tools for visualizing .

The system is designed taking into account the achievements of modern pedagogy with emphasis on the interaction between the students.

Can be used as remote as well as for full-time study.

Has a simple and efficient web-based interface.

The design has a modular structure and can be easily modified.

Students can edit their accounts, add photos and adjust a variety of personal information and details.

Each user can specify its own local time, all dates in the system will be transferred to his local time (messages in the forums, time assignments , etc.).

Supports various structures courses: "calendar " - a list of those broken down by specific dates learning " theme " - a list of numbered topics.

Each course can be further protected by a code word.

Changes in the course since the last user login can be displayed on the first page of the course.

Almost all typed texts (resources, forum posts , writing in a notebook ...) can be edited built RichText editor .

All estimates (from the forum, workbooks, tests and assignments) can be collected on a single page (or in a file) .

A full report on the occurrence of a user and work with graphs and details of work on different modules (the last entry, the number of readings, messages, write in their notebooks) .

You can configure E-mail - newsletters, forums, ratings and comments of teachers.

Control of educational activity also plays an important role for the efficiency of the learning process and allows the teacher to spend time correction according to the identified " weaknesses ." Distance learning system Moodle has a tool for the control of knowledge , which has the following features :

Automatic control test results (with certain settings , while creating test , the teacher can independently determine the need for viewing the results of the students , or do not wish to display them)

Adjustability and evaluation assignments , exercises , papers , essays, projects (the teacher has an opportunity to comment on each student's response when checking (for example, leave your comments) in order for the student to understand what he put so many points or evaluation)

Providing fast feedback (after verification tasks as well as student and teacher can learn the results of work performed)

Analysis of the needs of students, based on the results of questionnaires and interviews.

Formation of protocol reports finished tasks , practical work .

For each job, the teacher can create your own rating scale , such as a standard (5-point , 100 the scoring , not Ladder Ladder , etc.) and evaluate the results of student work at their own discretion .

Forming the base of e-learning materials to access the open education

In the future, plans to go to college correspondence from using DLS

Despite all the pluses:

1. quality educational information , opportunities , complex effect ;

2. constant feedback , reducing routine activities ;
3. development of practical skills , final experiment ;
4. artificial intelligence ;
5. other.

There are also disadvantages to:

1. lack of practice verbal dialogue; (eg foreign languages, of speech)
2. individualism , curtailment of social contact, communication and interaction;
3. problem of transition from thought to action;
4. "Temptation " of following links, distracting from the main;
5. saturation of media;
6. virtualization, the lack of real-world experience;
7. health impact

Create accounts . Working with a list of users

In the Administration block , select Users - Accounts - Working with a list of users. Page opens "Editing the list of users."

Here you can add (register) , delete, and edit user accounts system. Clicking on the name of the user opens the form in which we store personal data of the user's blog, full reports on the activities of his messages in all forums in which the user is involved. Here you can assign a role (right) the user, and this role will be a global, system-level, the user will have the rights assigned to it in all courses of the system. Local roles are assigned at the course level (Management - Assign roles).

In Moodle , the following roles:

- ✓ Administrator (can do everything on the site and in any course);
- ✓ The creator of the course (can create and teach a course in it);
- ✓ Teacher (much to do inside the course , edit course materials);
- ✓ Teacher without the right to edit (can teach students to evaluate them);
- ✓ Student (with access to the course materials)
- ✓ Guest (may have access to some courses at a resolution of guest access) .

Backup courses

Moodle allows you to make backups of courses (Administration - Courses - Backups) . You can choose which files and what service information book . You can assign up automatically after a certain period of time.

In addition , backup rate may be performed at the level of the course (if you are not an administrator) via a control unit - Backup .

Configuring the course

At the system level configures all modules Moodle (course elements, blocks, filters). These settings are the default settings for all items used in the courses.

Making educational site is important. We used a standard design . However, you can very quickly change and transform his site to give some personality traits. You just need to change the design theme (Admin - Appearance - Themes - Choosing a theme) . On the Internet you can find lots of free themes developed for Moodle. Of course, it need to pre- load the theme to the server.

Opportunities LMS Moodle

Moodle is a Class LMS (Learning Management System) - Learning Management Systems . In our country, such software often called distance learning system (DLS), since it is through these systems at many universities organized distance learning. Moodle - is free software license GPL, which allows free use of the system, as well as its painless changes in accordance with the needs of educational institutions and integration with other products . Moodle - an acronym for Modular Object-Oriented Dynamic Learning Environment (Modular Object - Oriented Dynamic learning environment) . Due to its functional capabilities system has gained much popularity and competes with commercial LMS. Moodle is used in more than 30,000 schools around the world and translated into nearly 80 languages, including Russian . More info about Moodle can be found on the official site (http://www.moodle.org/). (pic.1)

Picture 1. Moodle's interface

Moodle gives you the opportunity to design, create and manage resources in the future educational environment . Interface system was initially focused on the work of teachers who do not have deep knowledge in programming and database administration , Web sites , etc. The system has a user-friendly intuitive interface. Teacher myself, only resorting to the help of the help system , can create an e-course and control its operation . Virtually all resources and elements of the course as input fields used convenient WYSIWYG HTML editor , moreover, it is possible to enter formulas in TeX format. You can insert tables , charts, graphics, video , flash and other settings using a convenient mechanism , the compiler course can , even without having knowledge of HTML, easy to select colors and other design elements of educational material.

The teacher has the discretion to use both thematic structuring of the course calendar . When structuring thematic course is divided into sections by topic. When structuring the calendar each week studying the course is assigned a certain section , such structuring is convenient for remote training and allows students to plan their academic work.

Editing content of the course is conducted by the author of the course in any order and can be easily carried out directly in the learning process . Very easy to

add to the e-course different elements : lecture, assignment , forum, glossary , wiki, chat, etc. For each course there is a convenient e- page view of recent developments in the course.

Thus , LMS Moodle gives the teacher a comprehensive toolkit for presenting teaching materials for the course , theoretical and practical training, the organization of learning activities students both individual and group .

Administration of the educational process is well thought out. Teacher - administrator can register other teachers and students by giving them the appropriate role (the creator of the course , the teacher with the right to edit, and without him , the student , guest) , distribute rights to unite students in virtual teams , receive a summary of the work of each student . With built-in calendar to determine the date of commencement and completion of the course , putting certain tasks , terms of testing . Using the tool Explanation and Forum , publish course information and news.

Focused on distance education, learning management system Moodle has a large number of communications . It is not only e-mail and attachments with the teacher, but also a forum (general news on the main page of the program , as well as various private forums) , chat, personal messages , blogging .

Moodle is not only multi- unit test , but also provides an opportunity assessment of trainees in such elements as the course Quest , Forum , Wiki, Glossary , etc., and evaluation can occur on Arbitrary created teacher scales . There is the possibility of estimating articles Wiki, a glossary, answers to our other course participants. All grades can be viewed on the page count of the course, which has many options for mind mapping and group ratings.

Since the main form of control knowledge in distance learning is testing in LMS Moodle has extensive tools for creating tests and conduct training and control testing . Supports multiple types of questions in the test tasks (multiple choice, compliance , true / false , short answer , essay , etc.). Moodle provides many features that facilitate handling tests. You can specify the scale of assessments for adjusting teacher test items after the test learners , there is a mechanism of semi-

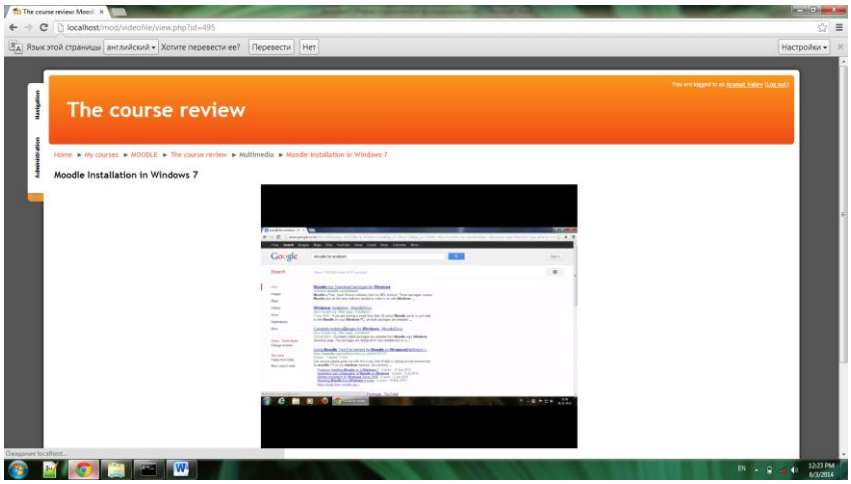
automatic conversion results. The system provides advanced tools for statistical analysis of test results and very importantly, the complexity of individual test questions for students.

Moodle Learning Management System can be used not only for distance learning, but will certainly be useful in the learning process and the traditional school and high school .

2.3 The technology of preparing e-learning program in “Moodle” system

The foundation of a learning management system Moodle were the principles which are generalizations of the many works of scholars such as L.S.Vygotsky , John Dewey , Jean Piaget , Ernst von Glazerfeld . Thanks to this research have been developed in such areas of education and psychology, as constructivism, constructionism, social constructivism. Discuss the main ideas of each of these areas.

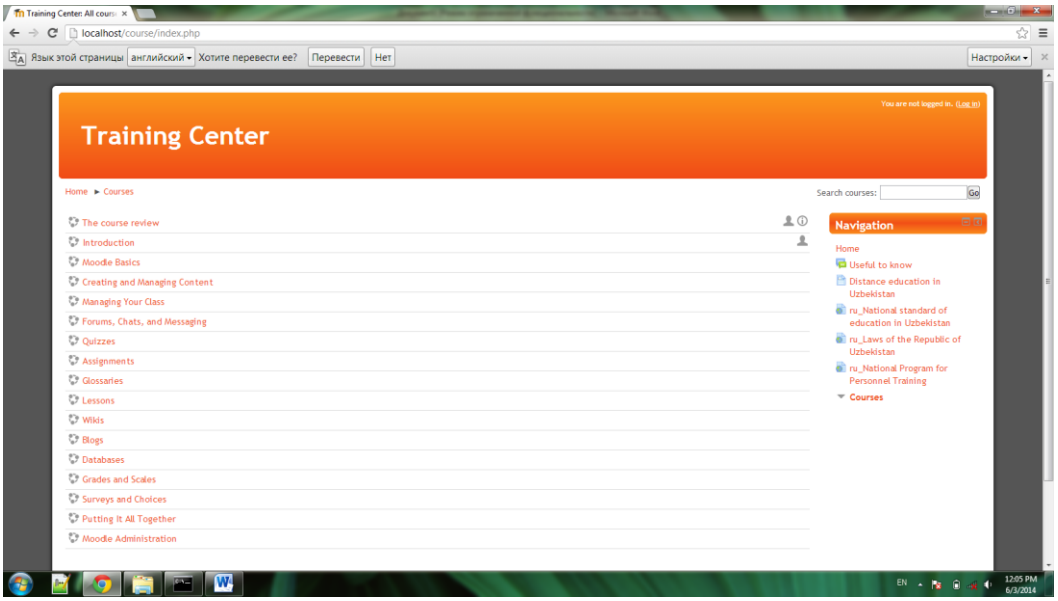
The basis of all learning is the interpretation of the information obtained through the prism of previously acquired knowledge. Everything you read, see, hear, feel, interact with the previously accumulated knowledge and, if it finds the response, complements and extends them. (pic. 2)



Picture 2. The technology of preparing e-learning program in “Moodle” system

Within constructionism argues that learning is much more effective if the student creates something for others, passes on his knowledge and experience. For example , you can read this chapter several times and tomorrow is almost nothing

to remember . But if you try to explain the foregoing another person, you will better understand and remember the material. (pic.3)



Picture 3. The content of e-learning program

Social constructivism extends the above to the level of interaction in groups. Participants work together to create a small culture of shared objects and meanings, thereby plunging into it.

Based on these trends Martin Dougiamas (ideologue and leader of the project to develop a learning management system Moodle) formulated five principles underlying the Moodle, uniting them under the title " social constructionism ."

1. This learning environment at the same time we all are potential teachers and students.

To implement this principle in Moodle there are a lot of tools (such as forums, wiki, glossaries, databases, seminars, blogs, private messages) that give students opportunities to participate in content creation. In addition to this very flexible system allows you to expand the roles of student's rights system until complete fusion on the possibilities with the role of the teacher.

2. We learn particularly well when creating or trying to explain something to others.

To implement this principle well suited the following tools:

 forums and blogs , allowing to organize the space to present and discuss the results of its activities;

 wiki, with which you can organize the collective work with documents;

 glossary allowing organize collective work on a list of terms that will automatically connect to the entire contents of the course;

 database is an extension of the idea of glossaries to work on any structured records ;

 seminars, allowing to organize multi-position , multicriteria evaluation of students' works .

3. Great contribution to education contributes to monitor the activities of our colleagues.

In part this is a consequence of the previous principle. To implement this principle in Moodle provides a wide range of tools for convenient access to information about students, teachers, and their activity in the course.

4. Understanding others will allow them to learn more individually.

To implement this principle in Moodle presents a wide range of communication tools (forums, chat rooms, private messages, blogs), questionnaires, surveys, convenient tools for access to the review activity of the participants of the course.

5. Learning environment should be flexible, providing participants with the educational process is a simple tool for the implementation of their training needs.

Given this principle implemented all the tools Moodle: communicative, educational and administrative. Interface is developed and improved with a view to securing a high degree of functionality with maximum simplicity.

Based on these five principles can build learning communities and effective influence on the processes occurring in them. Certainly, Moodle can be effectively used in the more traditional and simple situations: a test the creation of hypertext materials, etc. However, to fully use the Moodle learning management system allows:

 multivariance reporting;

- interactive learning;
- repetition of the material under study;
- structuring content and its modularity;
- creation of a constitutively active reference system;
- self- curricular activities;
- alignment of individual educational trajectories;
- privacy training;
- compliance with the principles of successful learning.

We introduce the concept of e-learning program. E-learning program - is an educational software system for multi-purpose, providing continuity and completeness of the cycle of didactic learning process: providing a theoretical material that provides training and educational activities control the level of knowledge , it is the program- methodical complex, providing the opportunity to own or with the help of the teacher for the program or its large section using a computer.

E-learning program - a software package with educational materials and tests on a specific subject.

In different dictionaries the term " design " is interpreted in different ways, but the meaning is preserved everywhere - development , creating a plan for the implementation of the ideal image .

Project (Latin projection - « throwing forward") - a prototype , the ideal image of alleged or possible object state ; independently designed and manufactured product (service) from the idea to its full realization (VD Simonenko , 2001).

Design - development of educational activities , the creation of the plan, the project of educational work in an educational institution (G.D. Buharova , 2004).

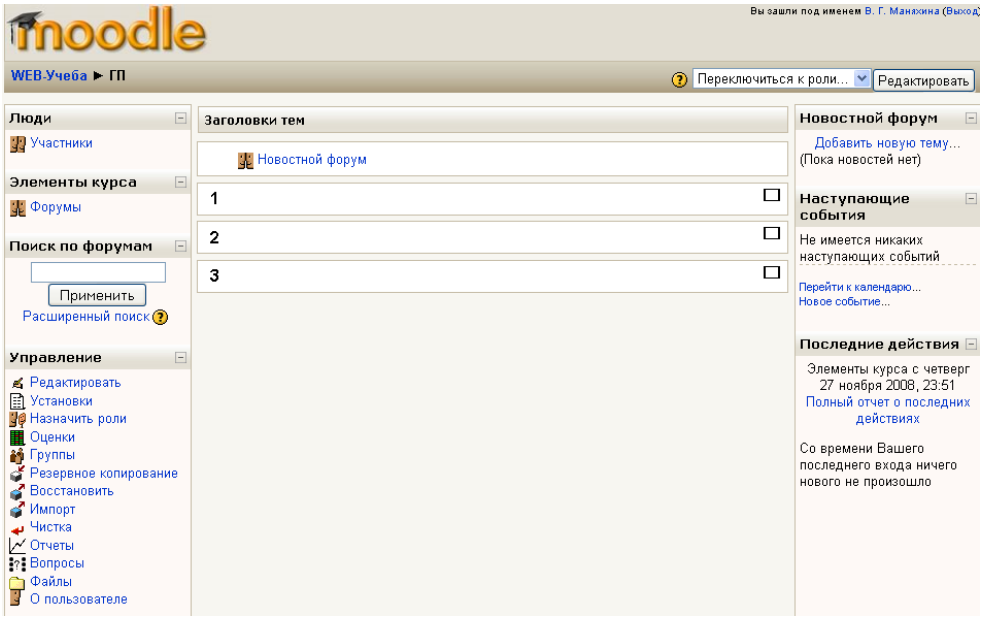
One of the fundamental concepts of distance learning system Moodle is a course . Within the course is not only a means of organizing the learning process in the traditional sense . The course may be just the medium of communication range of interested people within the same subjects.

Full work with the system , you are to create an account. But depending on the settings of each course, access to it may be expanded or restricted , as will inform the following :

 - means that the course materials, you can view without logging in an account ;

 - means that access to the course only opens consultant or access to courses you need to know the code word . Procedure for accessing specification represented in the respective course.

All courses have a similar structure. Standard Interface course is presented in pictur 4.



Picture . 4 Demonstration training

Each course consists of units arranged in the left and right columns and the main content (modules), located in the center of the page . Blocks increase functionality, intuitiveness and ease of use of the system. In the course of the following blocks:

 block " Teachers " contains the names , names of the teachers. Clicking on the appropriate link, you can get detailed information about the teacher, learn his e-mail address to send him a private message;

 block " People ." Following the link " Members," you can see all the participants of the course , their e -mail addresses (if they are allowed to publish them) , any of the participants send a private message , profile view , to know when they were last on the site or in this course ;

 block " My Courses " list contains all the courses available to you , making it easier to navigate between them;

 block "Control" (not shown in the figure) contains a link to a page with your assessments at the rate per page editing your profile, on page change your password and a link to exclude themselves from participating in this course;

 block " Calendar " contains a grid of the month marked on it with events that need to pay attention ;

 block " Messaging " contains your new personal message and a link to " Messaging " for quick access to the messaging system ;

 block " Recent Activity " contains new posts Forum is for you , my work at the moment and chat participants , changes in the elements of the course;

 block " Users Online " contains a list of users who visited in the course of the last time ;

 block " Upcoming Events " (not shown in the figure) shows all the current events for you for a certain period of time (usually 21 days).

The main content of the course is divided into modules: zero module of course common to all elements , and thematic modules .

Zero module typically contains forums, chat course , general descriptions related to the course as a whole. Zero module model training course , for example, may contain the following elements :

 Forum " News and Announcements course" contains topics that are automatically distributed to all participants of the course. Add topic can only lecturer , discuss - all participants of the course;

 " General Discussion " and " General Chat " reserved for free discussions students and teachers. Add and discuss the topic of the course all participants can ;

 glossaries and personalities .

The number and content of thematic modules can vary greatly depending on the course. The module generally comprises a number of elements united by the one theme. Thematic unit model training course, for example, may contain the following elements:

 short description : start and end date , title, date of passing the test and control work ;

 lectures, tests and self-control;

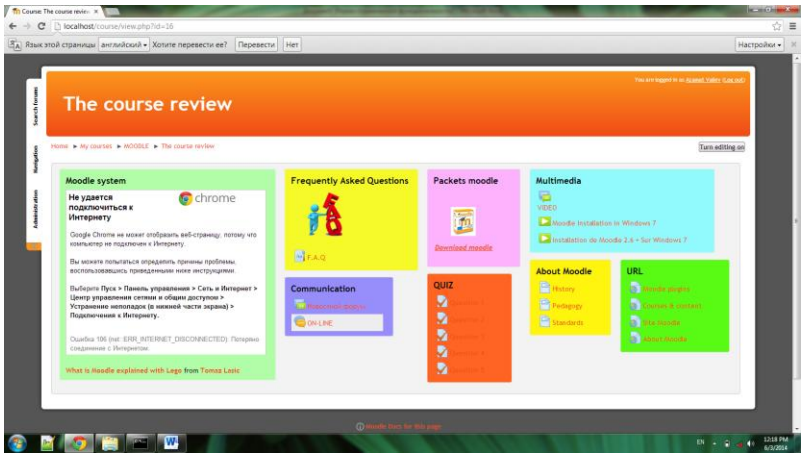
 themed test , training, job control (not shown) .

In describing the communicative capacity of the system can highlight the following points.

Working with the user's profile: user profile plays a very important role in communication . First, leave detailed information about yourself and attach your photo - it's a rule of etiquette, respect for the other participants in the remote program. Second, by using the settings in the user profile you can effectively control many aspects of communication.

Working in HTML- editor: for almost all texts are created using the Web language HTML. HTML markup language has its own syntax , which it would be necessary to know if you want to design your text to make it easier to read other people. But all this can be done without the knowledge of HTML! This will help you WISIWIG- editor that gives enough opportunities for formatting text , inserting pictures , links, working with tables . You can immediately visually assess what will be the result. In the HTML- editor, you can just as in Word, use some keyboard shortcuts (Ctrl + B to make text thick).

In the future, using the tools located in the column "Edit" on the page " Course categories " can modify , delete, rename categories , making them subcategories of other categories , move the category up / down in the list of categories to make the category name invisible to students.



Picture 5. The process of development of e-learning program in Moodle.

Creating a course

In the Administration block select " Exchange - Add / edit courses ."

In the next page, " Course categories " , select a category , which is supposed to create a course (in our case - "Pedagogy") .

Click on the " Add Course"

On the " Edit Settings course" fill in the required fields (" Full name of the course " and " The short name of the course ") and select the appropriate settings for your course .

Full name of the course

name of the course , which will be displayed in the list of courses. Our course will give the full name , such as " humane pedagogy ."

Short name of the course

name that is used to abbreviate the notation of the course , particularly in the upper part of the window in a line showing "the way ."

path.png

Assign short name of our course - " GP ".

Filling the remaining fields are optional , Moodle default assigns the most appropriate values of all the parameters of the course.

Consider the most important ones .

category

if, before the creation of the course you choose a category , you can do it now . From the drop-down list to choose the appropriate category of the course.

Brief description

a brief description of the course content .

For our course , you can write the following : " A summary of the ideas of humane pedagogics ." Course format :: form of organization of the course. Moodle offers the following formats:

Calendar (CSS)

business calendar schedules course (week after week) with the exact start and end dates .

Structure

Course Director topics.

Community (forum)

course is organized on the basis of one big forum . Can be used not only as a course , but as one big message board .

Created us to use the thematic organization of the course (Course Format - Structure) .

Number of topics / weeks

This parameter determines how many partitions you want to create on the main page of the course (for each topic / week - a separate section) . In this case, in order to be sufficiently 3 .

Groups

the use of group modes in the course.

No groups

students are not divided into groups , each one is part of a larger community .

Separate groups

group isolated from each other , the work of one group of students is not visible to other groups.

Available groups

each group of students can see what is happening in the other groups .

Note: If the group mode is defined here at the course level , it is the default mode for all elements created in the course. If it is intended only for certain elements of the course to organize group work , the group mode is set at the level of the elements of the course.

On the significance of other settings you can learn the course , using the help button (question mark) for the corresponding element .

Pressing the button "save" at the bottom completes the process of creating and setting the course.

Usually after that Moodle offers assign roles , determine which users will be able to work in this course and what rights have. We return to this point later.

Now you can return to the main page (using the top row showing "the way ") and see the newly created course in the course list .

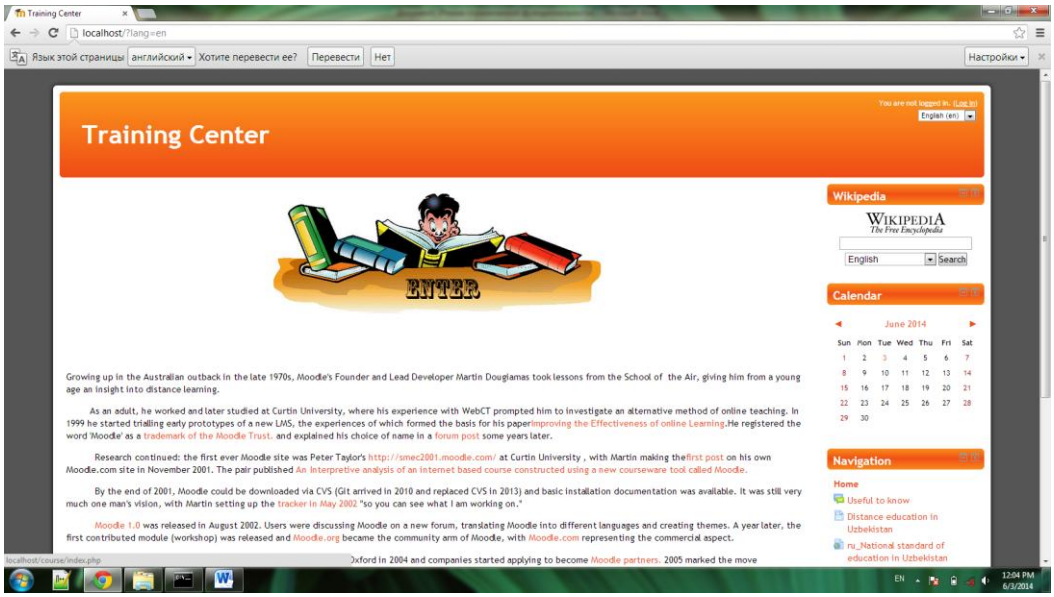
Changing the settings created course

It is often necessary to adjust the settings created course. To do this:

In the Administration block select " Exchange - Add / edit courses ."

In the next page, " Course categories " to select a category (click) , in which the course.

In the course list, locate your course and click related to this course . Edit settings page opens this course .



Picture 6. The screenshot of ready e-learning program

filling rate

Go to the home page of the course created (click on the course name in the list of courses available).

When we create a course in it automatically activated only news forum . LMS Moodle a large variety of modules (elements rate) that can be used to create any type of course . Depending on the course content and teaching concept , created by the most appropriate course includes elements and resources provided by the system Moodle.

You can divide the tools (modules) Moodle course materials for submission to static (resources of the course) and interactive (elements of the course) .

Resources include :

text page

Web page

Link to file or web page

Link to catalog

Explanation - allows you to place text and graphics on the home page of the course. With such labels can help explain the functionality of a theme , a week or tool used.

By the interactive elements of the course include:

Lecture element based on the principle of alternation with theoretical material pages and pages with teaching assignments and test questions. Sequence of transitions from page to page is predetermined teacher - the author of the course , and depends on the student answers the question. Incorrect answers on the teacher can give the appropriate comment.

Element Quest allows the instructor to set tasks that require students to answer in electronic form (in any format) and allows you to load it on the server . Element Quest allows to evaluate the responses received.

Element Test allows you to create sets of tests . Tests may be multiple-choice questions , with a choice of true / not true , suggesting a short text answer for compliance , essays , etc. These questions are kept in a database and can be

used again later in the same course (or other) . Tests can be learning (show correct answers) or control (evaluation report only) .

Element Wiki enables collaborative group work on documents trainees . This technology was developed specifically for team development , storage, structuring information (mainly hypertext) by the user's interaction with the web site . Any course participant can edit the wiki- article. All edits wiki- articles stored in the database , you can query any previous version of the article or to compare the difference between any two versions of past articles through links Recent Changes . Using tools Wiki, trainees work together on a wiki- editing articles, updating and changing its content. Editor , built- in Wiki, you can insert in the text tables, figures and formulas. Depending on the settings of group work Moodle may include wiki- twelve different editors. When teamwork teacher , using the history , can track the contribution of each participant in the creation of film and appreciate it.

Glossary item allows you to create and edit a list of definitions , like a dictionary . The presence of a glossary explaining the key terms used in this tutorial , you just need under extracurricular homework. Element Glossary teacher facilitates the task of creating such a glossary of terms . In a glossary can also be organized by the staff. Glossary can be opened to create new entries (articles), not only for teachers but also for students. Glossary - one way to fundamentally improve their experience in research homework. Glossary element of the course provides an opportunity to comment on articles and evaluation of both teachers and students.

Forum element is used to organize the discussion and are grouped by topic. After creating a theme each panelist can add to it or comment on your answer existing answers. To join the discussion , you can just browse the discussion topics and answers that are offered by others. This is especially useful for new members , for a quicker mastering basic tasks over which the Group operates. History discussion of these issues is stored in the database. The user can also play a more

active role in the discussion , offering their answers , comments and new topics for discussion .

Each e-course LMS Moodle allows you to create multiple forums .

Chat system is designed to organize discussions and business games , real-time system users are able to exchange text messages , available as all panelists and participants on individual choice;

Poll for rapid surveys and polls. Asks and identifies several answers ;

Profile selected several types of profiles especially useful for evaluation of interactive distance learning methods;

SCORM package allows you to easily upload any standard SCORM package and make it part of the course .

Adding items to the course and resources

Adding resources and interactive elements is carried out in edit mode. Click on " Edit " in the upper right corner of the main page of the course to enter this mode .

Add a theme

In section 1 we write the theme of this section .

Click on the button next to the number 1 (hand with pen) .

In a text editor , select the appropriate font settings and start typing : "Basics of humanely -personal pedagogy ." Click "Save" to return to the homepage.

Similarly, add a theme in sector 2: " Do I need a humane , personal approach in the modern school ? " And Sector 3 : " Control Testing "

Adding an element of the course "Lecture"

In sector 1 add lecture.

Add an element of the course - "Lecture ".

In the next page, "Adding a lecture " you need to specify the name of the lecture and , if necessary, change the settings of the default .

Enter in the name : " Goals and Objectives humanely - personal approach ."

Will not limit lecture time , and the " maximum number of responses in the card " set to 2 .

To each frame lecture looked good, "Formatting lesson" set :

" Slideshow " - " Yes ";

" Show a list of pages on the left " - " Yes ";

width, height, and background color of the slide set in its sole discretion .

Lectures while other parameters remain unchanged . Click «Save and display».

Create lectures

In the lecture , you can add :

- ✓ Cluster (used for additional items);
- ✓ Card - index (used to create partitions in lectures);

Page with questions.

The main element of the lecture - it's a web page with questions. At the beginning of the page explains fragment of educational material, and at the end of the page suggested questions for mastering control of this fragment . If a question is the correct answer next page loaded lectures, otherwise students will have more time to read poorly digested fragment of educational material.

Add a page with questions and fill it.

Amendments to the text of the lecture

You can edit the pages created by the lecture. To do this:

Open lecture

Enter edit mode (the " Edit ")

Click the Edit button located in the header of the desired page.

With the corresponding button , you can move above and below the specified page , and the button «x» delete the selected page.

Changing the settings lectures

Open the main course page and enter edit mode (button "Edit")

Next to the lecture will edit button, clicking on which opens the page containing the lecture setting .

Adding a link to a Web page

So, in one section of our course , we have created an interactive lecture. Add to this section of additional materials for the lecture .

Add a link to a web page containing information on the annual conferences on humane pedagogy.

Add Resource - Link to file or web page.

On the Add a resource to fill the mandatory field "Name" and specify the address of the web page.

If the web page is loaded on your server, to provide a reference from the " Choose or upload a file ", otherwise use the " Search the Web page " (search in Google) or manually enter the address.

Within this small benefit is impossible to describe all the features of LMS Moodle. Our goal was to acquaint you with this system and show how you can use it to create your e-learning course. We hope that you will join the number of teachers and teachers have already started using Moodle learning management systems in their teaching practice.

2.4 Implementation of e-learning programs in the educational process

For efficient use of E-LEARNING PROGRAM in the educational process is important not only its content, but also technical parameters - performance, ergonomics and artistic features. Basic requirements for this are:

1. Optimal amount of memory required, the correctness of the automatic installation, its availability to the user - layman;

2 . Perform all declared for E-LEARNING PROGRAM as software functions and logic transitions;

3 . Quality software implementation, including the startup behavior of parallel applications, the speed of response to the questions the correctness of the peripheral devices;

4 . The adequacy of the use of multimedia and harmony, originality and quality of multimedia components;

5 . Optimality in an interactive work E-LEARNING PROGRAM;

6 . Ergonomics software product software requirements (intuitive clarity and a friendly, ease of navigation and so forth).

In developing E-LEARNING PROGRAM need to consider traditional and modern didactic principles.

Traditional include:

The principle of scientific training. This principle requires that the content of the training material, selected to create E-LEARNING PROGRAM corresponded to the modern level of development of science and technology.

The principle of accessibility of education. From this principle it follows that should be affordable and feasible age, abilities and level of development of students.

On the basis of this principle to determine the degree of complexity of teaching material, its volume . At the same time, the principle is the basis of the availability of individual accounting and general psychological features of students depending on their age, level of development, the subject of study and other factors. Upon presentation inaccessible to understanding educational material dramatically reduced motivational disposition to teaching performance falls weakens willpower. However, an over-simplification of the material is not conducive to the formation of skills and most importantly does not promote student.

Therefore, starting with the selection of material for the electronic manual , you need to know especially those students who intended to make a program . At the same time it should be borne in mind that the facility may not be optimal for all people at the same time.

Systematic principle and consistency. When building a multimedia textbook must respect the principle of the sequence of the material.

This principle involves the consideration of any fragment of educational material in a multimedia tutorial in conjunction with other fragments in a logical sequence . Therefore, the organization of educational material and in the

preparation of the pedagogical program scenario we considered the rationale sections and that textbook .

Principle of consciousness, activity and independence of students in training. This principle is in mastering the students using a multimedia textbook knowledge, skills and abilities based on their activity and independence of action , show interest , enthusiasm and desire to develop creative abilities.

The most important requirement for multimedia tutorial , which is based on this principle is that , making algorithms , according to which the program will be based on mastering the student activity material , care should be taken positive learning motivation.

Formulated the motivation and support of a student are necessary for the effectiveness of training. When you create a script multimedia tutorial we have analyzed and tried to make a software tool such that it caused interest and not boredom , desire for knowledge , and not a disappointment.

Implementing the principle of activity, theoretical information electronic textbook supplemented laboratory classes that are designed to deepen the theoretical knowledge, develop students' skills to apply the knowledge , contributes to the accumulation and assimilation of knowledge. Perform laboratory assignments allow students to organize and play previously acquired knowledge , to conduct an independent search . The process of executing laboratory tasks contributes to the work of the electronic textbook emotional excitement increases the interest in the study discipline.

For self-study students discipline we have included in the module handbook mandatory and recommended books for a wider or a detailed study of a theme or topic. Ushinsky gave psychological basis of visual learning . Visual aids are a means to enhance mental activity and the formation of the image sensor. It is a sensitive way , and not the visual aid is central to learning.

It is obvious that with the advent of computer training has become more visible. Imagery, brightness, dynamic illustrations, implemented using the multimedia capabilities of the computer to reveal the most complex phenomena

and processes , all greatly expand the visibility of the educational process . With the help of computer graphics programs , you can create posters , charts, drawings, diagrams , videos , slides and other technical documentation . It helps students in difficult -to-understand educational material fragments that require visual explanations , improve perception, understanding and assimilation , reduce training time , increase the effectiveness of training activities in general. Do not overload the imaginative and emotional memory of students. In an electronic textbook need to enter only what is absolutely necessary to achieve the intended learning objectives . At the same time, in the process creating a multimedia textbook should maximize the opportunities for the implementation of computer graphics visualization in teaching .

New didactic principles .

The principle of interactivity learning means that the learning process should take place student's interaction with the electronic textbook. With respect to the electronic textbook interactivity should be regarded as a principle of construction of the program and as a criterion of quality. Interaction presupposes feedback : e-book should give a particular instructional impact (explanation hint a new question , a new job , etc.) only after the analysis of the student.

Principles of adaptive learning using electronic textbook means adapting , adapting the learning process to the level of knowledge, skills , psychological characteristics of a student. E-book allows you to vary the depth and complexity of the material being studied and applied focus , depending on the future profession.

The principle of quantization of educational material means breaking material into sections consisting of modules , the minimum volume , but closed and integrated content.

The principle of completeness (integrity) . Each thematic unit electronic aids must have fragment content of educational material ; checklists ; examples ; tasks and exercises for self-help ; testing throughout the unit ; context-sensitive help ; historical commentary .

Principle collection . Electronic textbooks and other didactic educational packages should be integrated into the formats that allow them to assemble into a single electron complexes , extend and complement them with new sections and topics , as well as create digital libraries in certain disciplines .

Principle branching means that electronic modules benefits should be linked hypertext links to the student had the opportunity to go to any other section implement consistent study of the subject .

Principle of regulation . The student has the opportunity to call up any number of examples in self- managing change web- pages.

Each of the didactic principles are equally important, they are all interrelated and interdependent. The principles, guidance on their implementation - it's not ready recipes , they should be used creatively, drawing on knowledge of teaching methods , and certainly complex .

Thus, when creating a multimedia textbook should be specific to computer-based training , to implement these principles in a software product to determine how it as close as possible to the nature of the cognitive activity of students .

And at the same time to reckon with the new principles :

1. Excluding psychophysical characteristics of the students;
2 . Psychological and educational ergonomics ;
3 . Functional completeness (open system) ;
4 . Prioritize learning strategies ;
5 . Principle motivational aktivnostnoy and security;
6. Principle of universal application;
7. Principles of modular construction.

These principles have recently added and the principle of unification and standardization .

Numerous scientific and educational research and practical experience allowed to form a rational structure of elements CMD highlighting it basic and optional units.

Basic technological stages of designing and creating E-LEARNING PROGRAM seven :

1. The analytical phase , which includes the development of the general concept of E-LEARNING PROGRAM , building information model of the studied subjects (section discipline, subject) , the wording of the main teaching objectives and learning objectives , a preliminary determination of general substantive content of the program;

2. Strategic step that contains the definition of the "image " contingent of students, development super goals textbook choice of determining strategic line training (choice of penetrating and / or basic educational technology , methods and tools);

3. Teaching stage, closely related to the preceding and including development of the composition and the general plan of construction E-LEARNING PROGRAM ;

4. Technological and structural phase , which consists in the immediate implementation of the plan in the form of software , its debugging and making corrective adjustments ;

5. Implementation phase, providing testing of the finished software product;

6. Control and diagnostic phase, at the end of which you can make not only the conclusion of a software product, but also to give an overall assessment of E-LEARNING PROGRAM in terms of its compliance with the functional requirements;

7. Prognostic stage with feedback analysis "user - authors" , E-LEARNING PROGRAM improvement based on the comments and suggestions of users , transport problems of creating a new vision for the solution of the EC didactic task.

According to this approach, design features, both the content and educational technologies E-LEARNING PROGRAM consist in the fact that :

1. The method of structuring the domain, resulting in learning material is divided into holistic, logically complete blocks;

2. Highlights the main components of meaningful learning activities for the development of material E-LEARNING PROGRAM for organizing training activities focused on basis;

3 . Constructed single (but distributed throughout the volume of E-LEARNING PROGRAM) domain thesaurus ;

4 . Methodically compiled associated with the content of practical tasks, which are then incorporated into a variety of innovative technologies, transformable into an interactive version.

Consider the different classification stages of design E-LEARNING PROGRAM. In designing E-LEARNING PROGRAM the following main activities: problem identification , conceptualization , formalization , implementation, and testing .

Identification of roles includes actors , performance tasks , objectives and resources used . At this stage the working group , with the need to address additional training : for teachers - in the field of information technology for programmers - on issues related to the features of didactic materials represent a particular domain .

Conceptualization involves determining the content, aims and objectives of the study of the discipline that captures the conceptual framework of the knowledge base. The teacher determines what types of information will be presented in E-LEARNING PROGRAM (texts, graphics, animation , audio and video clips) , which links should be established between them. For example, what sound most preferably at testing knowledge, and what materials should be submitted in the form of static charts with text commentary, and animations etc.

Formalization involves analysis of didactic problems which should be solved by the use of E-LEARNING PROGRAM, search and formalization of possible methods for their solution based on a model of the learning process and the characteristics of the available data and technologies underlying E-LEARNING PROGRAM . At this stage, we study the possible scenarios presenting trainees didactic materials, principles of assessment and feedback, and then construct algorithms, which will be the interaction of students with it.

Implementation of the project involves the translation of formalized methods for solving problems in the didactic final scheme - Action Script E-LEARNING

PROGRAM - as automated training system , which defines the features selected for the implementation of information technology . During the testing phase the trainees are offered such tasks that are most likely subjected to the test performance and E-LEARNING PROGRAM will identify its possible weaknesses. Most importantly check scenarios inherent in E-LEARNING PROGRAM, proving or disproving the effectiveness of the training methods used . Very promising are contests of development focused on the use of electronic textbooks during lessons.

In terms of content E-LEARNING PROGRAM must ensure completeness represent a particular domain, the effectiveness of teaching and use of instructional techniques, namely:

- Sufficient material compliance state educational standards, relevance, novelty and originality;
- Factual , practical richness , cultural component , consistency and integrity ;
- Pedagogical soundness of the product by the techniques used presentation of educational material , system monitoring , compliance with the principles of variation and differential treatment for the student organization of independent work with E-LEARNING PROGRAM .

Given the importance of E-LEARNING PROGRAM for independent work, you must turn in the following requirements:

1. The implementation of a clear logic of presentation of theoretical material with the ability to follow chains of reasoning all trained by special schemes;
2. Singular clarity problem statements;
3. Detailed examples commenting assignments, program instructional decisions and applications;
4. The use of different methods and tools to enhance the cognitive activity of students for all forms of educational process (for problematic situations , task exploratory nature , requiring for their solution to attract knowledge from other sources, etc.) .

When designing E-LEARNING PROGRAM must be considered: training and development are interrelated processes, and developing training can be only

subject to the requirements of the relevant psychological and pedagogical principles and laws . In this connection it is necessary to use different methods and tools to enhance the cognitive activities of students at all levels of the educational process : generate problematic situations , offering jobs and logical nature of the problem , put the cognitive tasks , requiring for their solution to attract knowledge from other sources, and so on.

The process of creating E-LEARNING PROGRAM proposed scheme takes at least a half to two years, provided that the teacher initially has a full training complex (curriculum, lecture notes, assignments and sets etc.) in disciplines. E-LEARNING PROGRAM can be developed and by the teacher, and with the help of information technology specialists, and with the participation of the trainees. However, in all cases, the teacher - the author of the program - plays a major role in the operational testing of the deliverables they need correction and adaptation in accordance with the results of their application in the educational process. Content of the final stage is the most complex and lengthy work of systematizing all individual developments into a single E-LEARNING PROGRAM .

As a very important moment in such a positive approach to the design should be noted that the process of creating E-LEARNING PROGRAM provides a consistent and seamless integration of electronic learning materials created in the learning process.

Top-down design involves a very thorough pre- conceptual and technological elaboration of the product made with all the expected ways to use features and integration in the educational process . We list the main stages of the design E-LEARNING PROGRAM in this approach :

1. The definition of educational objectives (knowledge and skills) , parenting and developmental objectives in view of the additional features that gives application E-LEARNING PROGRAM ;

2 . Formation of the content of the discipline , which can be extended in the case of E-LEARNING PROGRAM ;

3 . Detailing programs by themes or modules , the choice of teaching methods;

4 . The design modules and scenarios E-LEARNING PROGRAM ;

5 . Issues of creating and maintaining a database for monitoring and managing the learning process based on E-LEARNING PROGRAM (using network technologies);

6. E-LEARNING PROGRAM approbation .

The approach is especially characteristic of the development of E-LEARNING PROGRAM -based special software systems. For example, for high schools in the consortium Virtual University of the Europe and Central Asia, organized seminars to interested teachers become familiar with the features and capabilities of the system, as well as studying design E-LEARNING PROGRAM . Next he interested E-LEARNING PROGRAM forms on the basis of available materials : texts of lectures , plans seminars , practical exercises , simulation programs , etc. The formal work can be entrusted with engineering staff or by the learner . This set of formatting and text lectures and tests, as well as their implementation into E-LEARNING PROGRAM in accordance with the structure generated by the author . The main effort is directed to teacher training scenarios in which, in fact, find a way copyrights methodological developments . A large role is played here by the creative approach of the teacher to develop plans workshops for different categories of students. E-LEARNING PROGRAM is a tutorial, structured in a special way and recorded on electronic media or available through a computer network (LAN or Internet). When they realized this flexible script able to adapt to the specific needs and opportunities to train and develop its potential ability.

Based on the above proposed approaches, we designed E-LEARNING PROGRAM on discipline " Descriptive Geometry , Engineering Graphics" based on bottom-up approach . Because it allowed us to implement a tutorial step by step in the learning process.

PART III. SAFETY OF VITAL ACTIVITY

3.1 Organization and maintenance of a safe workplace

Under the operator workstation means the place equipped with means of information , controls and accessories, where it is full -employment . Jobs are classified by a number of grounds . Depending on the number of concurrent operators distinguish individual and collective workplace . By the nature of the operations performed by a man jobs are divided into automated , mechanized and primarily designed to perform manual operations . According to the degree of specialization jobs may be universal , specialized and specific . Depending on the position occupied by the person in the program of work , jobs can be designed to operate operator sitting, standing , sitting, and standing at the same time .

Engineering design allows psychological largely optimize operator position .

Workplace - this area equipped with the necessary technical means , which is committed activities .

By level of mechanization of jobs are divided into:

- Automated ,
- Mechanized,
- "Manual" .

Operator Station - a place in the "man - machine " , equipped with means of information , controls and accessories in order to work operator.

Man has always attempted to design their workplace , creating an environment that allows him to realize their abilities and professional skills.

Already it is generally accepted that the engineering and psychological logical research began with the development of requirements to view devices . But we should remember that no less controversial caused disagreements about working posture of the operator . Thus, the automobile factories of Henry Ford in the U.S. shortly before the Second World War was strictly prohibited working conveyor lines work sitting . Intruder waiting imminent dismissal. Ford believed that the man sitting fast asleep . Besides, by his logic , he who can not work

standing up - an obvious candidate for dismissal on health grounds. Now for violation of working posture is not fired. But still run the ship sailors standing . This position prevails in metallurgy, machine building , and trade. Most trams abroad is not equipped with seats for carmen .

Not less divisive recorded and form seats. Although in fairness it must be admitted that for a long time it did not pay much attention. The situation changed after the work of the Swedish doctor Bjorn Akerbloma "Workers standing and sitting posture " , which offered a new form of seating with a support on the back of the chair does not shoulder blades and lower back . Many businesses have switched to the production of such seats. But preserved and conservatives .

Largely comfort in the workplace and performance are determined and working conditions. Because the conditions of life on the earth's surface is enough variety . Suffice it to recall that the range of temperature changes on our planet is 144 º C (+58 ° C in the deserts till - 88 ° C in Antarctica) , and daily fluctuations in temperature in the Sahara Desert reach 50 ° C (at the optimum temperature in the workplace from + 18 to +20 ° C in summer and from +17 to +22 ° C in winter) . This is of particular importance, since already at +25 ° C fatigue sets in quickly , and at +30 ° C is considerably weakened by the intensity of mental activity.

The above mentioned examples show the importance of ergonomic factors on the efficiency of the operator. But the design of the workplace can not be limited to the analysis of the labor process and the operator taking into account only the anthropological data , sanitary conditions in the workplace and physiological characteristics of the labor process . Without diminishing the importance of ergonomics studies the comprehensive capabilities (ie, from the standpoint of different disciplines) optimization tools, environment and labor process operator in the "man - machine " , you must also carefully consider the requirements of engineering psychologists.

In particular, the design of the operator's position among the main conditions conducive to the realization of his professionalism should include:

* Ample workspace , allowing a person to carry out the labor movement and the movement of the operation and maintenance of equipment ;

* Reliable physical , visual and auditory communication with the equipment operator and other operators;

* Optimal placement workplace in industrial premises (with safe walkways);

* Required natural and artificial lighting ;

* Allowable level of acoustic noise and vibration ;

protection of the operator .

It is also important to include measures were :

- Prevent and reduce premature fatigue (tiredness);

- Prevent stress and error;

- Providing speed, security, simplicity and economy of maintenance in normal and emergency conditions ;

- Techniques and equipment to the functional requirements and the intended operation .

When arranging your workspace should also be taken into account:

- Configuration and placement method dashboards and controls;

- The need to review the workplace (panel);

- The possibility of writing and posting on the surface phones, devices and other ancillary documentation;

- Space for legs and feet in a sitting position.

The operator must have a definite scheme of action. The image of this situation, as you know - it is a conceptual model . In emergencies unexpected situations , when manifested mismatch between the model and the actual situation, the operator appears operational thinking . To these intellectual abilities manifested operator with the greatest efficiency in all conditions , the workplace must meet certain requirements.

Depending on the conditions in which the operator works, there are three areas of his actions : the minimum, maximum , optimum .

Minimum and maximum areas correspond to the limiting possibilities of the operator. Determine the maximum and minimum limits within which specific functions of operator activity . Outside the function or does not occur , or there is a violation of her . The closer the characteristics of the conditions of an operator to these borders , the less efficiently and reliably it works. Most effective physiological and psychological functions and activities of the operator implemented in an optimal zone.

The main features of the optimal zone are:

1. The highest manifestation of the function operating system (motor, sensory , etc.). For example, the highest accuracy of discrimination, the reaction rate , etc.

2 . Prolonged preservation system performance, endurance of the operator (for example, at an optimum pace flow of information) .

3 . Vrabatyvaemosti short period (from standstill to high efficiency) .

4 . Stability functions and operations of the operator , that is, the smallest variability of results . Care of the optimum range (eg , tempo) immediately increases spread of health indicators .

5 . Match operator reactions to external influences . Thus, when operating in conditions beyond the optimum range , strong signal can cause poor response inadequate .

6. Good consistency (eg , synchronization) in all the system components.

Specific quantities characterizing features of the optimal conditions for the various functions depend on the training of operators , their age , and individual typological features.

Naturally, the display means , the administration and the operator as a whole must be designed so as to provide optimal conditions for the manifestation of mental and physiological functions of the operator , because in such circumstances maximum efficiency , accuracy and reliability of its activities with minimal energy cost.

Time requirements operator workstation .

1. Command function should be performed with a minimum number of operations.

2 . Quantity and the trajectory of labor movements should be reduced to a minimum.

3 . Controls should be positioned so that the work is evenly distributed between the right and left hand of the operator , and the right hand should be performed most critical operations requiring the highest accuracy or greatest strength .

4 . Avoid location consistently used controls at different heights when required alternately raise , then give up , or often bend .

5 . All controls should be placed so that, where possible , to reduce workers' movements to movements of the forearm , hand fingers, allowing movement of the shoulder joint only as an exception .

6. Main controls , the most important and frequently used , placed in optimum working space, where the best conditions are provided for manual operation and control.

7. Optimum working space is limited arcs that describes each operator's hand during the rotation of the elbow joint (arc radius of 340 mm).

8. Maximum working space is limited arcs described by arms outstretched at their turn in the shoulder joint (radius arms 550 mm).

9. Emergency and responsible authorities are placed in the optimum zone arm's reach .

10 . Secondary controls and indicators are located in the zone of maximum arm's reach (with a large total number of controls) .

11. Uncomfortable seats reserved for devices associated with setting up , calibration and validation . They can be placed outside the normal operating zone or hidden under the panel .

12. When controls are placed next to the indicators , the operator's hand should not cover indicator and handle controls the right hand of the operator , is

placed to the right or below the corresponding or related indicator (and similarly for the left hand) . Avoid cross of two hands.

As you know , the basis of the operator's position any type of remote control . It should provide a convenient and sufficient size workspace for operators in the area of free movement of the remote , rational distribution of the remote means of communication , a place for keeping records , view and maintain current documentation.

The main engineering and psychological characteristics of the control panel are its shape and dimensions .

In practice became common front , trapezoidal shape and versatile remotes.

Front panel form involves placing all controls within the zones and the maximum allowable reach and indicators - within the zone of the central and peripheral vision (eg , along the wall) .

Trapezoidal panel is used when it is impossible placement of controls and indicators on the front end principle. In this case, controls and indicators are located partially on the side panels deployed relatively front at 90 - 120 º.

The semicircular shape panel is most useful when a large number of funds oto6razheniya information and controls ; side panels recommended arranged so that they are perpendicular to the line of sight of the operator . The minimum diameter of the semicircular panel for a single operator is 1,200 mm.

Geometric dimensions of the remote control based on anthropometric characteristics of specific groups of operators . For example, a record height - 283 cm was recorded at Finn Kajanus . The lowest growth of an adult male was 38 cm Note for comparison that the average height is 168 cm Muscovite and Muscovite - 157 cm

Designing the best conditions update operator professionalism during the activity to the introduction of the principles formulated by researchers optimize its workplace. These include, in particular, are the following ones:

1. Principle of workplace human capabilities . It requires the placement of elements in the optimal and accessible areas.

2 . Principle significance requires the placement of important elements near the center of the panel in a prominent and convenient for the operator .

3 . Principle accounting requires the use of the frequency at the center of the panel to put frequently used items .

4 . Structural correspondence principle involves placing indicators in the area of visual information and controls - in the control zone .

5 . If you need an urgent , immediate response , then the principle of spatial alignment indicator is combined with the management body (eg , backlit keys with inscriptions) .

6. According to the principle of functional groups are placed together a group of instruments and indicators are functionally related to one node (unit) equipment. Well placed and controls .

7. Principle operational streamlining involves the placement of instruments and controls along a line in the order of their use in the execution of the algorithm (this is possible only if the system has one or repetitive algorithms) .

8. Principle of reducing the length of arrays of similar elements requires consideration when placing items on the field of psychological patterns of 7 plus or minus 2 , that is, it is desirable to group 5 - 7 - 9 items in a group .

It should be remembered that the duty in the workplace takes the operator about a third of his life. Therefore, designers always need to think not only about the stringent requirements of state standard for the design of the workplace, but also to take care of its decoration .

Solution of the organization of the workplace of the operator should be held in conjunction with the design of the interior space (interior) of all control points . Interiors operational control points are architectural forms and decoration, technical equipment and furnishings , color scheme and lighting system. All interior elements must be in harmony , the aim of optimizing the working conditions.

Interior space control center usually divided into three zones: the working , auxiliary and recreation.

The main function space is a work area. It is limited to complex functional elements of the operator's position . In this zone set with the remote control equipment , instrumentation , communications with managed objects ; information boards and panels (panels, mimic device audible and visual alarms, etc.); various recording devices .

Good planning decisions of the working area is one in which all the information panels located along one of the walls of the room and place the operator in terms of the angle is at the top (not more than 90 º), formed by lines drawn from the extreme points of the panel. This is due to the fact that when considering the readings side allowable angle of 45 º to the normal panel ; at large angles obtained significant distortion . If necessary, organize devices in the area exceeding 90 º, perhaps planning solution work area control center , which employs several operators . The size and area of the working zone depends on the total length of information panels and boards performed taking into account the engineering and psychological demands (valid survey optimal viewing distance , etc.).

Auxiliary zone is needed to service the operational boards and panels of information. It can also be arranged non-immediate information blocks. Auxiliary zone covers the space immediately adjacent to the back of the operational boards and panels and needed to work on the setting up and monitoring devices and equipment . The area of this zone is determined by the requirements of the technology and given passes that provide a convenient approach to the reverse side shields operational service installed on board instruments and other items.

The recreation area is intended for psychological recovery efficiency of the operator during a short rest and should be placed inside the control room so that from it can be observed when the graphic signals, operating panels and control panels.

From this appointment follows the dual nature recreation area. First, it provides a short-term stay of personnel control point. To do this, it is equipped with functional furniture, shape and style which are fundamentally different from

rational form elements of the working area. Second, it reduces the psychophysiological stress arising from the operator in the program of employment, reduces the visual and nervous fatigue, thereby increasing the effectiveness of his work.

3.2 Personal protective equipment at the workplace. The rules for their use.

Under the operator workstation understood area of his work activities in the "man - machine", equipped with technical equipment and auxiliary equipment necessary to perform the functions of control and process control.

Proper organization of the working conditions involves rational layout ¬ tetragonal equipment and placing permanent work , which places staff in response to psycho-physiological characteristics and anthropometric data, security work and normal ambient conditions. To this range of issues relative to the decision - layout of display information and controls on billboards , panels and other construction, organization of working posture of the operator and the total space Contents carrier point considering aesthetic friction requirements . The ultimate goal of the organization is to optimize workplace conditions of employment, ensure maximum reliability and efficiency of operatores (collective operators) .

When arranging your workspace should be observed after following basic conditions :

- Ample workspace for the operator, allowing to perform all the necessary movements and movements in the extra - operation and maintenance of equipment;

- Sufficient information communication between the operator and equip-ment, as well as between operators;

- Optimal allocation of jobs for smokers of operational work, as well as safe and adequate passageways for the operator;

- Optimal placement of equipment , which is part of the workplace, mainly of display information and controls ;

- The necessary natural and artificial lighting for operational purposes, maintenance or training ;

- The permissible level of acoustic noise, vibration, and other factors of production environment created workplace equipment or other sources;

- Availability of the necessary instructions and warning signs to caution about the dangers that can arise at work, and pointing to the necessary precautions;

- A reliable indication of failure of the electric power supply apparatus ¬ tours , as well as indication of failure of the apparatus itself as well as its function.

The design and placement of jobs should include measures that prevent or reduce premature fatigue of the operator to prevent the emergence of his psychophysiological stress, and the emergence of erroneous ¬ governmental action

The design of the workplace must ensure speed, reliability, simplicity and cost of technical maintenance and repair in normal and emergency conditions; fully meet the functional requirements and the intended operation .

Depending on the basic functions performed by the operator by means of the display and control , jobs can be classified as follows:

1) workplace operational management designed to control problems , issuing commands and orders , etc. ;

2) information and reference workplace which is used for requesting and obtaining certificates of state system as a whole or its individual units , as well as for generating, transmitting and receiving symbolic or graphic information;

3) workplace manual input of information necessary for the prompt start of symbolic or graphic information;

4) workplace functional process control , providing operational control of functional correction completely hardware and communication channels;

5) workplace computer programmer , which is used for its connection with the computing machine , as well as for debugging computer programs ;

6)A combination of jobs and the sharing of the operator of several functions .

CONCLUSION

Currently experiencing a stage of the education system can be compared to the period following the emergence of the printing press . As you know, this has led to the abandonment of a system in which a teacher literally gave his lectures , and their listeners were recorded verbatim and then memorized . Established Czech teacher - humanist Jan Amos Comenius cool - task system and a response to the new situation . Under this system, students receive copies of textbooks from which they can do in the classroom and at home. Similarly, now a revolutionary change in the existing technology of the educational system is designed to perform computing equipment . Computers must inevitably lead to a change in the existing technologies in schools , colleges and universities , the introduction of computers in all spheres of human activity - a reassessment of the role of certain knowledge .

The main purpose of computers in teaching - is to solve some problems directly associated with the information (storage , retrieval, processing) , the introduction of E-LEARNING PROGRAM , allowing students to independently acquire knowledge necessary for them . Many facts , knowledge of which is now considered necessary to professionally trained person, you can , if necessary, to get on the screen.

Nowadays E-LEARNING PROGRAM actively implemented not only in systems of open and distance learning , but also in the traditional full- forms - in the general education system , NGOs, ACT , VPO . E-LEARNING PROGRAM used for different purposes: to provide independent work of students on mastering new material , implement a differentiated approach to the organization of learning activities , quality control, training , etc. At the same time in different educational institutions developed quite a number of E-LEARNING PROGRAM , covering a variety of subject areas .

Sometimes, however, the authors of these programs suited to their construction according to their subjective perceptions of the requirements for E-LEARNING PROGRAM . This leads to the fact that in some cases, E-

LEARNING PROGRAM limited from the functional point of view, but it does not allow for using them to improve the quality of training and development trainees. The most common deficiencies are complicated , sometimes confusing navigation, overly complicated structure of the workspace , saturation E-LEARNING PROGRAM demonstration materials to the detriment of meaningful content and , conversely , the lack of examples to illustrate the theoretical positions , etc.

Designing E-LEARNING PROGRAM , in contrast to other information systems has its own specifics . In the design process E-LEARNING PROGRAM distinguish two stages. The first and main step is to identify the teaching conditions. That is , the process of identifying teaching conditions , the creation of the ESM (E-LEARNING PROGRAM , in particular) is significantly different from developing any other information product . The paper emphasizes the need I.G.Zaharovoy use top-down design method E-LEARNING PROGRAM , involving a thorough pre- conceptual and technological elaboration of the product made with all the alleged methods of its application and integration features in the educational process . In this case, E-LEARNING PROGRAM design begins with the definition of educational objectives (knowledge and skills) , taking into Requirements for the E-LEARNING PROGRAM . In the modern sense E-LEARNING PROGRAM is a complex didactic system , the functioning of which support the learning process by means of information and technical education (ITE) . How can E-LEARNING PROGRAM system to combine the functions of the automated training and control systems , simulation software , and other software AID. In order to monitor and necessary correction of the learning process within E-LEARNING PROGRAM can also be generated database for the current and the generalized performance information. In the completed form as E-LEARNING PROGRAM system includes following functional blocks:

1. Meaningful information;
2. Control and communicative;
3. Correction and synthesis

The main functions of this system are the maintenance of special languages designed to find specific information on the particular needs, as well as representation of the information found in a convenient form for the student. Modules and scenarios E-LEARNING PROGRAM . In the next process step, solved the task of transforming the methodological design ideas in the interface , the design and implementation of the functional structure of E-LEARNING PROGRAM .

LIST OF USED LITERATURE

1.I. Karimov national ideology - for us a source of spiritual and moral force in the construction of the state and society. In.: I. Karimov is our ultimate goal - the independence and prosperity of the country, freedom and well-being of the people. T. 8. Tashkent, Uzbekistan, 2000.

2.Speech by President I. Karimov of Uzbekistan Islam Karimov at the UN Session "Millennium Development Goals" from 20.09.2010
www.pressservice.uz/ru/news/show/vistupleniya/
address_by_h.e._mr._islam_karimov_presid /

3.I. Karimov Report "Our Way - a deepening of democratic reforms and consistent continuation of the modernization of the country" from 07.12.2011

4.Boatmen MV Illustrator CS3. Self-study course with an electronic handbook. - "Kudits-Press", 2008.

5.Voiskunsky A.E. Dependence on the Internet: the actual problem, M., 2000.

6.Dubnischeva T.J. The use of modern computer technology in the teaching discipline "concepts of modern science" / / Proceedings of the XVI International Conference and Exhibition "Information Technologies in Education." - 2006.

7.Yuri Yegorov Multimedia as a means to improve the efficiency of learning in secondary school / / Abstract. diss. Candidate. ped. Science - Cheboksary, 2000.

8.Egorova N. Morozov, M.N., Kirillov V.K. Multimedia technology is a comprehensive tool to enhance learning in secondary school / / Proceedings of the Regional Scientific - practical conference Cheboksary, CTU them. Ulyanov, 1999.

9.Zakharov I.G .Information Technology in Education: Studies. benefits for the students. vyssh. ped. Textbook. institutions. - Moscow: Publishing Center "Academy", 2003. - 192 p.

10.Ivanov D.V. The phenomenon of the computerization M., 2000.

11.Klemeshova N.V. Multimedia as a didactic tool High School / / Abstract. diss. Candidate. ped. Science - Kaliningrad, 1999.

12.Korzhinskii S. N. The book web-master: Effective use of HTML, CSS and JavaScript. / "KnoRus" 2000

13.Krasnopyorov S.V. Autodesk Inventor. Self-study course - SPB.: BHV-Petersburg, 2008.

14.Kruchinina G.A. New information technologies in the educational process. Multimedia training program. Nizhny Novgorod, 2000.

15.Kuvshinnikov S.V. Training complex media materials for teaching a new generation of engineering disciplines / SV Kuvshinnikov / / Proceedings of the XVI International Conference and Exhibition "Information Technologies in Education." - 2006.

16.Smolin M.A. Corel Draw X3. Self-instruction - M.: "Dialectic", 2006.

17.Stolbov I. Innovative approaches to the preparation of the lecture material:

18.Abstract or video / I. Stolbov., ES Doudar / / Alma mater. Journal of Higher School number 6. - 2008.

20.Antonov A.V. Information: perception and understanding. - Kiev: Naukova Dumka, 2006.

21.Artem Soloveitchik. Three days into the new dimension of pedagogy / / "The first of September." - 2000, № 28.

22. Lining M.I., Pozdnjakov SI Reznik, NA Information environment of learning. - St. Petersburg.: LIGHT, 2007.

23.The Giant T.V., Zhohov A.L. On peculiarities of electronic textbooks / Subject-methodical preparation of the future teachers of mathematics, computer science and physics: Collection of papers of the Scientific Conference. T. 2. - Togliatti Tomsk State University, 2003.

24.Werner I. All of the media. - Kiev: BHV, 2006.

25.Waterfall S.N. Grigoriev SG Psycho-pedagogical aspects of the revitalization of educational activity of students using the computer / / Proceedings of Coppermine. - T.CCIXX. - Issue. 1. - Kursk, 2002.

26.Galperin P.Y. Psychology as an objective science. Moscow: Publishing House of the "Institute of Applied Psychology." - Voronezh: NGO "MODEK", 2004.

27.Judge V.P. Thematic immersion method using multimedia technology in teaching mathematics: Dis. Candidate. ped. Science. - Samara, 2005.

28.Episheva O.B. The technology of teaching mathematics on the basis of the activity approach: Teacher's Book. - M.: Education, 2003.

29.Zakharova K.G. Information Technology in Education: A manual for students of higher educational institutions. - Moscow: Publishing Center "Academy", 2003.

30.Kudryashov T.G. Systemic use of multimedia learning: problems and ways of their solution / / Vestnik Moscow State Pedagogical University. Series "Information Science and Informatization of education." - Moscow: Moscow State Pedagogical University, 2004, № 1 (2).

31.Sailor D.S. Computerization of general secondary education. - Moscow Pedagogical Society of Russia, 2004.

32. Savotchenko S.E., Sobolev M.V. Interactive posters in the subject of the teacher in the school. - Belgorod: GOU DPO "Belgorod Regional Institute of Training and re-training", 2009.

33. Selevko G.K. Modern Educational Technology: Manual. - M.: Education, 2004.

34.Dictionary "Basic concepts and definitions applied internetics" / / Website «Brockhaus.ru» / http://www.brockhaus.ru/