

# Interactive Education at the University of Defence

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*Abstract:* - The article deals with questions of the creation and the development information resources e-learning at the University of Defence. E-learning is determined both for part time and full time students, especially for extension their knowledge. The questions are described from the authors and students view which will use electronic information resources to explanation and education. There are characterised information, their content and form of distribution.

*Key-Words:* - E-learning, Interactive education, Electronic publication, University of Defence, CD-ROM development

## 1 Introduction

University of Defence is focusing on education, training and preparation of military professional for the necessity of Army of the Czech Republic and civil specialists in the field of crisis management. [1]

Information distribution is one of the basis aspects determining of education quality. The costs for printed books are often superior to utility value. Detrimental of these informational sources are:

- Purchase price,
- Time out between publication of final version of teaching material and making their printed form.

In printed form there are minimal possibilities for the changing of the content. Some students prefer printed form of publication in lieu of computer study. On the other hand the computer form of study offers more highly clearness of explication. This study form effects on

more sense at students and quickly evaluates the study results.

The aim of this paper is to inform about development of information technologies usage that are used for education of civil students at University of Defence.

## 2 Utilization of information and communication technologies

There are several possibilities for providing of study materials in electronic form.

### 2.1 E-learning forms

Electronic education is possible to classify into two categories:

- On-line education,
- Off-line education [2].

It is necessary to have connection with Internet site for on-line education. The distribution of study material is proceeding by net medium. The advantage of this

method is minimal cost for publication of information, the disadvantage can especially be availability and bit rate of internet site. It is also unusual to distribute of mass of data.

Off-line education does not need connection to net site. The study materials are available at data medium (CD-ROM, DVD-ROM etc.). These media enable transfer of mass of data. The advantages are in speed of data origination, in processing a new version and minimal cost for distribution.

## 2.2 Electronic sources in term of content creation

Electronic textbooks present electronic version of lecture notes or books that is intended for print. All students have this publication at disposal for their study. By easy up-date of content the school can economize spending on print.

Multimedia publication is tutorial completed by multimedia items. By contrast with electronic publication where are using only figures are in this type of publication use audio-visual and video-visual recording, computer animation and the other item. The final level in creation of educational materials is programme textbook. These textbooks can students lead to obtaining of knowledge by ideal way. On the basis of student answers and check questions are detailed the explications.

## 2.3 Most significant Internet feedback

While in use education system it is possible effectively to monitor and record the user behaviour in the statistic base. Student knowledge can be check by questions. Student obtains the survey about its knowledge [3].

The test presents the question group checking student knowledge. Questions are automatically assessed.

With using computer student fillings-up the interactive homework or the interactive form.

## 2.4 Present condition

The educational portal vportal.unob.cz provides for students education information. The Internet site provides main information about subjects, aim of the subject, preceding subjects, follow – up subjects, topics, literatures.

Each department has reserved place in the portal for savings educational materials. The student can save passed lesson, tutorial homework.

Some departments have ready for test-teaching systems. It serves as verification student knowledge by the credit or exam. Questions are computer – generated from the question data bank. Then the questions are automatically evaluation.

E-mail serves as communications instrument for main information distribution, small corrections credit works and homework.

Our university has not so widely developed e-learning as other university in the Czech Republic. Some departments of czech universities have major part of study materials in the electronic form.

## 3 Development of the interactive CD-ROM

The subject Environmental security is taught for master study programme called “Civil Protection”. The subject broadens students’ knowledge in the area of sustainable development and regional security with focus on global environmental threats, technological and security risks from the viewpoint of their prevention, management and institutional support [4]. This subject is very visual. Some chapters are difficult to describe in letterpress for instance ecological disturbance – greenhouse effect. There is better to use the picture or instructional

video. The problem is simpler for student and better comprehensible.

On development interactive CD-ROM works team 3 people – the programmer, the scientific guarantee, the executor. The programmer provides under the production and programming CD-ROM. The executor prepares all scientific information that are involved on CD-ROM. The scientific guarantee supervises on science and accuracy preparing medium.

The advantage preparing CD-ROM is that student has all necessary guaranteeing information in one place. It is not necessary to pay any licence. The Internet provides a lot of information but there are not confident.

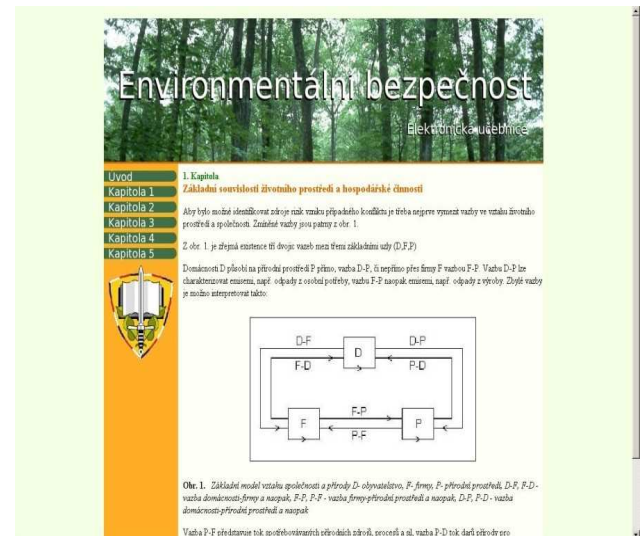
CD-ROM is programmed in the language HTML and JavaScript. Their biggest advantages are that:

- They can be to operate on each computer without necessity to install in new programs.
- These languages are multi-platform. This mean that can be use on each computer with operating system MS Windows, Linux/Unix or Mac OS.

This is guarantee condition to provide trouble-free activity.

First par will contain electronic publication (figure 1). Publication will make up inedited mimeographed of the subject. Depending up the development of this discipline will be update. It will depend on students if they will print the mimeographed.

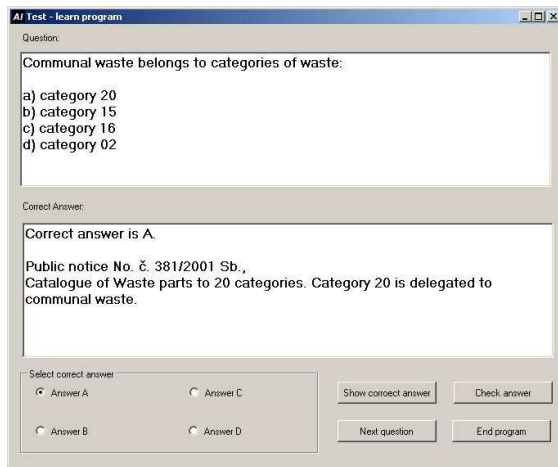
Fig. 1 The show of the electronic publication



Video-recordings, pictures and audio-records are serving as better understanding the problems. The electronic publication will complete help index witch will link up with the publication. Student looks for some definition on the ground choose criteria. The link will show him all references in the electronic publication.

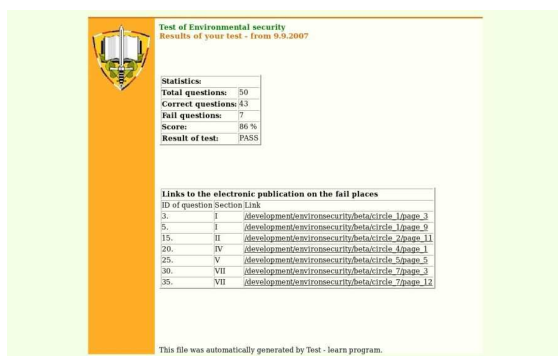
The second part preparing CD-ROM forms learn-test program. The program asks the question the student. The student chooses its answer. For the answer the student use radio-button (it means only one answer is right) or by the help of check-box and check-mark (it means one and more question are right). By the choosing the answer the student confirm the button – check. If the student does not know its answer he can use button – show the answer. The program shows its right answer and reasons this question (figure 2).

Fig. 2 The show of the learn-test program and valid question



After finishing the learn-test program is automatically generated HTML file in the student computer with the fail question, statistic and the link on CD-ROM to the electronic publication. HTML file is saved on the computer flat. Its name is the same as the date the test doing (figure 3). The link makes it possible to study the part of the electronic publication with the student does not know. The advantage is that the student will study only unknown problems. The student has time to study only unknown problems. The connection these two parties bring higher feedback for student.

Fig. 3. The test result

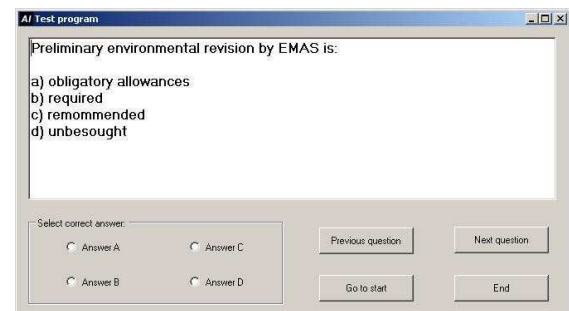


The third part of CD-ROM will create infilling the interactive homework and interactive form. This par of exercise brings near the practical problems the

students. By the filling the student can use the help. After finishing the homework the student will see the right of filling.

The fourth part contains the incisive test (figure 4). This test is corresponded with the real test in the class. Off-line test version the student can try at home. The results are exported to the file. The file is saved on the flat of computer. On-line test version is using in the computer class on the university. The collective test can function by award the credit or exam. Whole test is preparing modular. It means that the teacher can prepare this test in the MS Word. The teacher can add new questions. By using text editor the teacher cannot learn new software program or programming language. The university must not pay any licence or buy new software product. In the incisive test is guaranteed random sample the questions. The medium contains memory of asked questions. It is insurance that the student cannot get two and more identical questions.

Fig. 4 The show of the incisive test



## 4 Conclusion

In the future we will prepare on-line education version. Preparing CD-ROM will help the students with study on each places in the world and anytime. The main endeavour was to make the best of e-learning and to putted down its inadequacies. This CD-ROM will help as the example for other subjects in the university.

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